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# Utilization of near-isogenic lines to identify genes underlying iron-efficiency QTL

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# Utilization of near-isogenic lines to identify genes underlying iron-efficiency QTL

by

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## Dedication

To my parents, Michael and Sharon and my brother, Andrew for always supporting and encouraging me to make the best out of every situation and always pushing me to achieve more.

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## Abstract

Nutrient deficiencies are a significant abiotic stress of soybean. Iron deficiency chlorosis is a major concern in the upper midwestern region of the United States due to the prevalence of calcareous soils. Soybean's susceptibility to iron stress results in yield losses into the hundreds of millions each year. Understanding the molecular differences between resistant and susceptible cultivars will significantly affect future yield and revenue. Through the use of near-isogenic lines (NILs), molecular markers, and gene expression we have identified the donor parent introgressions through both classical SSR mapping and a novel method of SNP clustering which can be preformed using data generated through either chip-based SNP genotyping platforms or identified de novo though re-sequencing techniques. By aligning the newly constructed introgression map with the previously identified Fe efficiency QTL we identified a region on chromosome 3 where the two were positionally coincident. To further narrow this region of interest, the NIL was backcrossed an additional generation to the recurrent parent in order to identify recombinations within the chromosome 3 introgression. These lines were identified as Sub-NILs. Recombinants were identified in regular intervals throughout the introgression and phenotyped. Donor parent alleles identified within a 250 kb region represented the minimum interval differentiating the efficient and inefficient Sub-NILs. A second NIL sharing the same donor parent was screened for introgressions. The only region of the genome the two NILs shared alleles from the donor parent, introgressions, were

localized to the same region on chromosome 3 further adding support to the importance of the these alleles. Eighteen genes were annotated within the region and were screened for gene expression differences in soybean roots 24 hours following the removal of iron in the growth medium. Two of the genes were differentially expressed between sufficient and insufficient iron conditions. Interestingly, these genes are homologs of two transcription factors in *Arabidopsis thaliana* known to function in the iron response pathway. Sanger sequencing of these two genes identified a significant mutation that deletes 4 amino acids in the susceptible lines. We hypothesize that this deletion disrupts the FIT / bHLH heterodimer that has been shown to induce known iron acquisition genes.

# Chapter 1. General Introduction

## Rationale

Iron is an integral nutritional requirement for plants and animals alike (Clarkson and Hanson, 1980; World_Health_Organization, 1996; Bogden and Klevay, 2000; Welch and Graham, 2004). The negative effects of iron deficiency are seen across kingdoms. Worldwide iron deficiency anemia is a concern with 30% of the human population suffering, however in developing countries such as India greater than 85% of menstruating or pregnant women suffer from severe anemia (Kapur et al., 2002; Theil, 2004). Iron fortification of foods is a viable technique for counteracting anemia in first world countries. However, the cost of these foods is out of reach for people in developing countries (Kapur et al., 2002). Increasing the iron content in locally grown crops would make a far greater impact on the severity of this disorder.

Before significant impacts on human nutrition can be made, the molecular basis of iron uptake and utilization in plants must first be delineated. Iron deficiency chlorosis (IDC) is caused when plants lack sufficient iron for normal growth (Mori, 1999). IDC is manifested phenotypically by interveinal chlorosis, stunted growth and significant end of season yield losses (Abadía et al., 1999). Though IDC should not be thought of in mere economic terms, in 2004 soybean losses were reported up to 25%, equivelent to 120 million dollar loss (Hansen et al., 2004). In Iowa and Minnesota alone, crop losses were greater than 10 million dollars (Hansen et al., 2004). For

these reasons, many breeding populations have been developed to study underlying mechanisms of IDC.

IDC is a complex trait, as the mechanism seems to be population specific. It has been shown to be the result of a single gene with modifiers or a polygenic trait with many genes contributing to phenotype (Cianzio et al., 1980; Cianzio and Fehr, 1982). The single gene hypothesis is supported by a QTL responsible for >70% of the phenotypic variation (Lin et al., 1997). *Lycopersicum esculentum* and *Arabidopsis thaliana* have been used as model systems for studying the reduction strategy of iron uptake. Using these systems, researchers have identified many of the genes responsible for reduction and transport of iron from the rhizosphere (Brown et al., 1971; Grusak and Welch, 1990; Ling et al., 2002; Vert et al., 2002; Connolly et al., 2003; Bauer et al., 2004; Jakoby et al., 2004; Bauer et al., 2007). Furthermore, through recent advances in protein-protein interactions and gene expression studies, some of the co-regulators of the accepted reduction strategy transcription factors have been identified (Yuan et al., 2007).

Near-isogenic lines (NILs) have been created in soybean to study IDC in a common genetic background (Bernard, 1975). It has been suggested that reduction is the rate-limiting step in the iron acquisition process (Grusak and Welch, 1990; Connolly et al., 2003). O'Rourke and colleagues (2007) hypothesized that regulation of the reductase gene is the most likely difference between the NILs.

## Research Objectives

The purposes of the current study were to: (1) map donor parent introgressions in two iron-inefficient NILs and align the introgressions with previous iron-efficiency QTLs; (2) use further backcrossing to narrow the donor parent introgression in the NILs; and (3) identify genes differentiating the response of the NILs to iron stress through coordinate mapping and gene expression analysis using qRT-PCR and RNA-seq.

## Dissertation Organization

This dissertation is organized into five chapters. The first chapter contains the introduction, research objectives and dissertation organization. The second chapter is a literature review presenting current and previous research in iron deficiency chlorosis. Chapters 3 and 4 are each presented as complete manuscripts. Chapter 3 has been published in Plant Physiology, while chapter 4 has been submitted to Plant Physiology. Chapter 5 contains overall conclusions derived from this research in addition to my recommendations for further research.

Chapter 3 entitled, 'An integrative approach to genomic introgression mapping', was published in 2010 volume 154 of Plant Physiology (Severin, Peiffer, et al., 2010). The donor parent introgressions were identified using polymorphic SNPs from chip based genotyping platforms or next-generation sequencing. Significant clusters of SNPs were used to identify regions of introgressions. Identified introgressions were

confirmed with SSR marker genotyping between the NILs. Collaboration was an invaluable aspect of the manuscript genesis. Gregory A. Peiffer and Andrew J. Severin conceived the concept of SNP clusters differentiating NILs. Andrew J. Severin, Gregory A. Peiffer and Robert M. Stupar conceived the analysis and co-wrote the manuscript. Gregory A. Peiffer generated plant material for next generation sequencing and performed the SSR marker analysis of the NILs and donor parent. David L. Hyten performed the Illumina GoldenGate analysis; Yung-Tsi Bolon contributed material and Illumina GoldenGate data for the protein NILs. Bruna Bucciarelli and Jamie A. O'Rourke generated the Single Feature Polymorphism (SFP) data. Wayne W. Xu performed the SFP data analysis and RNA-seq data analysis using Method-1. Andrew J. Severin performed the RNA-seq data analysis using Method-2. Andrew J. Severin and David Grant created the bootstrapping method. All authors discussed the results to improve the analysis.

Chapter 4 entitled, 'Identification of candidate genes underlying an iron-efficiency QTL in soybean', has been submitted to Plant Physiology and focused on the major NIL donor parent introgression on chromosome 3. Further backcrossing of the NIL with the recurrent parent and coordinate phenotyping narrowed the donor parent introgression. Candidate genes within the narrowed introgression were then analyzed for gene expression changes in iron sufficient and iron deficient conditions. Two transcription factors were differentially expressed at 24 hours in iron stressed roots. Sanger sequencing identified a significant mutation in one of the transcription

factors identified as a homolog of a major regulator gene in the iron response pathway. Gregory A. Peiffer wrote the manuscript, conceived the hypothesis and experimental design through the introgression identification, narrowing and gene expression changes. Keith E. King and Nicholas C. Lauter performed Fe efficiency QTL analysis in the Anoka x A7 population. Andrew J. Severin contributed to the gene expression analysis. Shun Fu Lin provided phenotypic scores of the Anoka x A7. Silvia R. Cianzio generated the population. Randy C. Shoemaker and Silvia R. Cianzio provided guidance and editorial assistance for the manuscript.

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# Chapter 2. Literature Review

Soybean (*Glycine max* (L.) Merr.) is the number one oilseed crop in the world and a major source of protein for animal consumption. Soybean is a multi-purpose commodity used for everything from a simple appetizer to the production of ink and plastics. Production of a large enough quantity of bean to meet the demand requires a healthy crop. In the last decade, United States annual soybean production averaged of 2.98 billion bushels (USDA-NASS). The majority of this crop is produced in the Midwestern United States, which produced a total of 2.85 billion bushels or 86% of the annual yield in 2010 (USDA-NASS). The soils in these states are often calcareous, meaning they have a high calcium carbonate level and a pH around 8 (Inskeep and Bloom, 1987). The high pH and high calcium carbonate levels typically result in a nutritional disorder known as iron deficiency chlorosis (IDC).

## Iron deficiency chlorosis

Iron deficiency chlorosis manifests itself as an interveinal yellowing of the leaves with the persistence of green veins unless the deficiency is severe (Bienfait, 1986). The loss of pigment is due to the plants' inability to manufacture chlorophyll. Iron is an immobile element in the plant, meaning that chlorosis symptoms will only be observed in young leaves and are not consistently expressed throughout the plant. Therefore, chlorosis severity scores are determined from a particular leaf, and are

scored on a continuous five-point visual scale (Cianzio, 1979; Froehlich and Fehr, 1981). A score of one is reserved for a leaf with no yellowing and a score of five is reserved for a completely necrotic and desiccated leaf. A three corresponds with the beginning of interveinal chlorosis and a score of four requires necrotic spots (Cianzio, 1979). The 5-point visual scale has been shown to directly correlate with end of season yield losses. Froelich and Fehr (1981) reported a 20% decrease in yield for each unit increase in the visual score. In a 2003 mail response survey, 99% of the respondents indicated that IDC was a serious issue in their fields and that an estimated 25% of the crop was affected (Hansen et al., 2003). The annual cost to the soybean community due to IDC was calculated at nearly 120 million dollars (Hansen et al., 2004). Today soybean bushels are selling nearly seven dollars higher, increasing the cost to soybean growers to approximately 260 million dollars a year.

Iron deficiency isn't a problem of iron abundance, but rather of plant availability, as iron is the second most abundant metal and the fourth most abundant element in the earths crust (5.63%) (Taylor, 1964). Iron exists in two biologically relevant states, soluble ferrous iron ($Fe^{2+}$) and insoluble ferric iron ($Fe^{3+}$) (Vance, 1994). Soil iron typically exists in the ferric form bound as a part of insoluble oxyhydroxide polymers (Guerinot and Yi, 1994). Free ferrous iron is converted to insoluble ferric complexes very quickly in high pH soils. At a biological pH of 7.0, 90% of the soluble ferrous iron is oxidized within an hour and at a pH of 8.0 the same reaction takes place in less

than 30 seconds (Vance, 1994). The concentration of soluble iron in calcareous soils is approximately $10^{-10}$ M due to the rapid oxidation and hydrolysis of ferrous iron (Lindsay, 1995). Plants typically require soluble iron at a concentration of $10^{-4}$ M to $10^{-9}$ M (Guerinot and Yi, 1994; Lindsay, 1995). Plants have devised multiple mechanisms to overcome the issue of iron availability, without which most could not survive in soils with pH greater than 5.0 (Lindsay, 1995).

Iron forms complexes with a multitude of ligands and can alter its redox potential depending on its conformation (Hell and Stephan, 2003). Its variable redox potential makes iron a prime candidate for electron transport in respiration and photosynthesis. Iron-sulfur clusters are essential for photosynthesis and many other plant pathways (Holm et al., 1996; Staples et al., 1996; Dai et al., 2000). Iron-sulfur clusters are most common in the $Fe_4S_4$ or the $Fe_2S_2$ varieties (Flint and Allen, 1996) although they exist in other ratios (Holm et al., 1996). Iron-sulfur clusters are used to transfer electrons through photosystem I, photosystem II, and the cytochrome b/f complex during the photosynthetic light reactions (Briat et al., 2007). The dark reactions are made possible through the use of iron-sulfur clusters via ferredoxin:thioredoxin reductase, which reduces thioredoxin and in turn activates ribulose 5-phosphate kinase, sedoheptulose 1,7-bisphosphate and fructose 1,6-bisphosphate (Staples et al., 1996; Imsande, 1998; Dai et al., 2000). The above reactions illustrate only a couple of the important roles that iron plays in plant growth

and development. Other roles include nitrate assimilation, sulfur assimilation, and TCA cycle control (Imsande, 1998).

While iron has many benefits for plant growth and development, it requires tight control within the plant. Iron's redox potential, when uncontrolled, has detrimental toxic effects (Hell and Stephan, 2003). Reactive hydroxyl radicals ($OH^{\bullet}$) are formed when free iron reacts with superoxide or hydrogen peroxide though a process called the Fenton reaction (Briat, 2002). Hydroxyl radicals cause rapid, nonspecific oxidation of biologically significant compounds that can result in severe damage or death (Graf et al., 1984). Thus, iron within the plant is tightly regulated and shielded from oxygen (Hell and Stephan, 2003). Newly acquired iron is quickly bound by nicotianamine (NA) as the Fe-NA complex makes a poor Fenton reagent (Von Wirén et al., 1999; Hell and Stephan, 2003).

## Strategy I and Strategy II response

Two strategies for iron uptake have been identified in plants (Marschner et al., 1986; Römheld, 1987). The first includes all dicot and non-graminaceous plants such as, *Arabidopsis thaliana*, *Lycopersicum esculentum*, *Pisum* sativum and *Glycine max*. Plants in this group respond to iron stress by acidifying the rhizosphere though the release of hydrogen ions across the root membrane. The lower soil pH increases $Fe^{3+}$ solubility in the soil, freeing it from complex soil mineral particles. Soluble $Fe^{3+}$ undergoes reduction to $Fe^{2+}$ at the plasma membrane via an inducible $Fe^{3+}$

reductase (FRO) (Brown, 1978). The reduced Fe is then quickly transported into the root via an iron related transporter (IRT) (Brown, 1978). In addition to the external scavenging methods, strategy I roots induce other physiological changes that include an increase in organic acid concentration in the root to chelate Fe to prevent precipitation or free radical generation, root morphology changes as well as root hair development (Schmidt et al., 2000; Hell and Stephan, 2003). Strategy II plants, including wheat, barley, rice, and maize differ from the strategy I plants in that they secrete ferric chelators, known as phytosiderophores (Hell and Stephan, 2003). Phytosiderophores have been defined as "low molecular weight, virtually Fe(III) specific ligands produced as scavenging agents in order to combat low-iron stress" (Neilands and Leong, 1986). They are created via a one step reaction by nicotianamine synthase that binds three molecules of methionine to nicotianamine (Hell and Stephan, 2003), and are released in a diurnal pattern into the soil (Graham and Stangoulis, 2003). In the soil matrix phytosiderophores scavenge and chelate iron in either the $Fe^{2+}$ or the $Fe^{3+}$ valencies and then import the entire iron bound complex across the root membrane via a specific transporter identified in maize as the yellow stripe 1 (ys1) gene (Curie et al., 2001; Hell and Stephan, 2003).

## Transcription factor activity

Model organisms for the study of strategy I include *A. thaliana*, pea (*P. sativum*) and tomato (*L. esculentum)*, though most of the previous work has been generated from *A. thaliana* and *L. esculentum* studies (Grotz and Guerinot, 2006). There has yet to

be a confirmed gene or mechanism that explains the process of sensing iron stress to initiate transcriptional changes. However, nitric oxide has been implicated in multiple studies as transmiting the iron response signal to initiate transcription of iron acquisition genes (Graziano et al., 2002; Graziano and Lamattina, 2005; Arnaud et al., 2006; Graziano and Lamattina, 2007). The first well-characterized transcription factor in the iron response pathway, FER, was identified in *L. esculentum* through reciprocal grafting experiments (Brown et al., 1971; Brown and Ambler, 1974). Brown et al., (1971) observed that for effective iron uptake a functional FER gene was required in the roots but not in the leaves. More recently, the LeFER transcription factor has been cloned and confirmed to function as part of the iron deficiency transcriptional response (Ling et al., 2002). The *A. thaliana* homolog of the LeFER gene, FER-like Iron Deficiency-Induced Transcription Factor (AtFIT) (Bauer et al., 2007), has been identified as At2G28160 (Bauer et al., 2004; Jakoby et al., 2004; Yuan et al., 2005). Although homologs, the expression patterns of LeFER and AtFIT differ. AtFIT is expressed only under iron stress conditions (Colangelo and Guerinot, 2004; Jakoby et al., 2004). In contrast, LeFER is expressed regardless of iron status in the plant (Ling et al., 2002). LeFER and AtFIT function as transcriptional regulators essential for the induction of IRT1 and FRO2 (Ling et al., 2002; Bereczky et al., 2003; Colangelo and Guerinot, 2004; Jakoby et al., 2004).

AtFIT (AtbHLH029) is a member of the basic/helix-loop-helix (bHLH) transcription factor family. The bHLH family is the largest of the *A. thaliana* transcription factor

families with 174 members (Toledo-Ortiz et al., 2003). Using phylogenetic analysis, the family can be broken into 21 distinct sub-families. The N-terminal region, thought to generate DNA binding specificity, predominantly consists of ~15 basic amino acids (Toledo-Ortiz et al., 2003). The C-terminus of the bHLH protein contains the HLH region thought to function as the dimerization domain (Murre et al., 1989; Ferre-D'Amare et al., 1994). The hydrophobic residues, which make up the two helices, dimerize, allowing the basic N-terminus to bind both halves of the signature E-box recognition sequence (Ma et al., 1994; Shimizu et al., 1997; Toledo-Ortiz et al., 2003). The general consensus sequence for the bHLH recognition domain, the e-box, is 5'-CANNTG-3' with the variable N's providing specificity to this large family of transcription factors (Toledo-Ortiz et al., 2003). For further specification and complexity, the family of bHLH genes has a tendency to function as either homo or heterodimers (Ma et al., 1994; Shimizu et al., 1997; Massari and Murre, 2000; Toledo-Ortiz et al., 2003). Not unlike others in the bHLH family, AtFIT has been thought to interact with another bHLH gene(s) to activate downstream iron regulatory genes (Colangelo and Guerinot, 2004; Grotz and Guerinot, 2006). In the pursuit of these interacting factors, AtbHLH038, AtbHLH039 (Vorwieger et al., 2007; Wang et al., 2007), AtbHLH100, and AtbHLH101 (Wang et al., 2007) were identified as strongly induced under iron stress conditions. These four bHLH genes are members of the sub-family Ib (Wang et al., 2007) or sub-family 2 (Toledo-Ortiz et al., 2003) in the bHLH transcription factor family. This sub-family of genes contains two distinct features that separate them from the rest of the family. The four genes share

a three amino acid insertion within the second helix in the HLH domain, and three of these genes contain a specific cysteine residue in the loop region (Vorwieger et al., 2007).

The central transcription factor AtFIT was shown to bind AtbHLH038 and AtbHLH039 through a yeast two-hybrid analysis (Yuan et al., 2008). This was the first link beyond coordinate gene expression between these three bHLH genes. *A. thaliana* plants over-expressing either AtFIT/AtbHLH038 or AtFIT/AtbHLH039 accumulated more iron in their roots and shoots, and were more tolerant of iron stress conditions than with over-expression of AtFIT, AtbLH038 or AtbHLH039 alone (Yuan et al., 2008). Yuan et al. (2008) further demonstrated the interaction with dual expression of AtFIT/AtbHLH038 and AtFIT/AtbHLH039 in yeast cells with GUS expression under control of AtFRO2 and AtIRT1 promoters. This indicated that the heterodimers AtFIT/AtbHLH038 or AtFIT/AtbHLH039 were direct regulators of AtFRO2 and AtIRT1.

AtbHLH039 expression has also been shown to be influenced by POPEYE (PYE), a bHLH transcription factor (Long et al., 2010). In pye-1 mutant plants AtbHLH039 was strongly induced both under iron stress and sufficient conditions, indicating PYE plays a role in regulating AtbHLH039 expression (Long et al., 2010). It is expected than many pathways and regulatory elements are in place to control the expression

of FIT and its interacting factors as FIT plays such a major role in the expression of iron deficiency inducible genes (Colangelo and Guerinot, 2004; Long et al., 2010).

## Ferric reductase oxidase (FRO)

Following the acidification of the rhizosphere, iron is still unavailable for uptake and use in the plant until it is released from organic compounds and reduced to the ferrous state via ferric reductase oxidase (Robinson et al., 1999). Previous research has shown that reduction is the rate-limiting step in the iron acquisition process (Grusak and Welch, 1990; Connolly et al., 2003). Two mutants (frd1-1 and frd1-3) have been identified that lack the ability to reduce ferric iron and therefore cannot efficiently uptake iron (Yi and Guerinot, 1996). It was discovered through cloning and sequencing of the *A. thaliana* ferric chelate reductase gene (AtFRO) that it was allelic to both frd1-1 and frd1-3 (Robinson et al., 1999). The frd1-1 mutant contained a stop codon in its first exon and the frd1-3 mutant harbored a substitution from threonine to methionine in the sixth exon (Robinson et al., 1999). AtFRO2 is a member of the flavocytochrome family that contains seven other FRO genes that all contain a FAD binding site, a NADPH binding site, four histidine residues, and 8-9 transmembrane helices (Mukherjee et al., 2006). Members of this family have been found in *L. esculentum*, yeast, pea and humans (Dancis et al., 1990; Roman et al., 1993; Chanock et al., 1994; Waters et al., 2002; Li et al., 2004), and are expressed in many different tissues including leaves, shoots, and roots (Robinson et al., 1999; Mukherjee et al., 2006). Expression analysis of the flavocytochrome family in *A.*

*thaliana* has shown that AtFRO2 predominantly functions in the root (Mukherjee et al., 2006). Within 24-hours following iron stress, AtFRO2 transcript levels significantly increase to alleviate the stress (Buckhout et al., 2009).

Over-expression of ferric reductase has shown promising results for increased iron deficiency resistance (Connolly et al., 2003; Vasconcelos et al., 2006; Ishimaru et al., 2007). In 2003, Connolly and colleagues over-expressed AtFRO2 using a constitutive 35S promoter. The transformed plants grew significantly better in iron-stressed conditions compared to the wild-type, which confirmed the claim by Grusak (1990) that reduction was the rate-limiting step in iron acquisition. Since this initial study, the yeast ferric iron reductase gene (refre1/372) was transformed into rice (Ishimaru et al., 2007). The transformed plants performed significantly better under iron stress with a nearly 8 fold yield increase compared to the wild-type plants (Ishimaru et al., 2007). More recently, the *A. thaliana* FRO2 gene was transgenically expressed in soybean grown in hydroponic conditions (Vasconcelos et al., 2006). Transgenic plants showed a significant increase in chlorophyll content in addition to a significant gain in biomass, due to iron deficiency compared to wild-type plants (Vasconcelos et al., 2006). These experiments together indicate that manipulation of the ferric chelate reductase gene can have significant effects on plant growth under iron stress conditions.

## Iron regulated transporter (IRT)

Following reduction by AtFRO2, strategy I plants must transport reduced ferrous iron across the root membrane. The *A. thaliana* iron-regulated transporter 1 gene (AtIRT1) has been implicated as a major component of the iron uptake mechanism (Eide et al., 1996). AtIRT1 has been shown to transport Mn, Zn, Cd and Co in addition to Fe (Korshunova et al., 1999), however, irt1 mutant plants will die prior to seed set unless given exogenous amounts of iron (Varotto et al., 2002; Vert et al., 2002). AtIRT1 is a member of the zinc response transporter (ZRT), IRT-like Protein (ZIP) family that contains 25 members (Guerinot, 2000). The family is further broken down into two sub-families, one consisting mainly of plant derived genes and the other consisting of Animalia genes (Guerinot, 2000). Like AtFRO2, the expression of AtIRT1 mRNA and protein also spike in roots 24 hours following iron stress (Buckhout et al., 2009). Interestingly, AtIRT1 is post-transcriptionally regulated (Connolly et al., 2003) to alleviate excess iron transport (Hell and Stephan, 2003). Post-transcriptional control of AtIRT1 was discovered after two observations: AtIRT1 protein levels were reduced within 12 hours following the re-ntroduction of iron, and over-expression of AtIRT1 only accumulated AtIRT1 protein in iron-limiting conditions (Connolly et al., 2002). The over-expression of AtFIT/AtbHLH038, AtFIT/AatbHLH039, or the over-expression of AtbHLH039 alone released AtIRT1 from post-transcriptional regulation in both iron sufficient and deficient conditions (Yuan et al., 2007). AtbHLH039 is unable to bind and function as a homodimer, indicating that AtbHLH039 and an unknown factor may regulate the post-

transcriptional control of AtIRT1 (Yuan et al., 2007), further illustrating AtbHLH039's importance in iron homeostasis.

## Identification of QTL associated with iron deficiency chlorosis

Increasing productivity of soybean lines in iron stress conditions can be achieved with the addition of exogenous iron (Abadia et al., 2011), although the most economical and durable method to control IDC is through the identification and utilization of resistant genotypes (Longnecker and Welch, 1990; Mortvedt, 1991; Wiersma, 2005). For decades, soybean breeders have teased out the genomic locations of genes responsible for iron use efficiency in various populations. The earliest study of IDC concluded that iron-efficiency was controlled by a single recessive gene with no maternal effects (Weiss, 1943). Following this initial observation, iron-efficiency was identified as a dominant gene with modifiers (Brown and Caldwel, 1967), a single major gene with co-dominant inheritance (Cianzio et al., 1980), and a quantitative trait controlled by additive gene action (Cianzio and Fehr, 1982). In 1997, Lin et al., mapped quantitative trait loci simultaneously in two populations with two years of leaf chlorophyll concentrations in addition to the standard, visual IDC scores. Their report described two populations, one exhibiting polygenic inheritance and the other a single major gene with modifiers. Polygenic inheritance was observed in a Pride x B216 population with multiple QTL mapping to 6 major linkage groups (MLGs), with no QTL contributing > 30% to the observed phenotype. In the other population studied, Anoka x A7, Lin and colleagues

observed a single major gene with modifiers. In this population, a region on MLG N (chromosome 3) contributed 78.7% to the observed phenotype, further strengthening the argument for two separate mechanisms for IDC control, and that are dependent on the population being studied (Cianzio and Fehr, 1982; Lin et al., 1997).

## Hydroponic growth of soybean lines

Field plots are inherently inefficient for iron deficiency chlorosis QTL mapping and evaluation. Studies are limited to geographic regions harboring calcareous soils, a single growing season during the summer, and the relative severity of chlorosis (Jessen et al., 1986; Lin et al., 2000). To alleviate these limitations, a hydroponic growth system was established by Chaney et al. (1989;1992). Using a hydroponic system, Jessen and colleagues (1988) screened eight genotypes with varying responses to iron deficiency and found a 0.98 correlation between visual scores from calcareous soil and hydroponic environments. To further prove that hydroponic plant growth under iron stress conditions would mimic results obtained on calcareous soils, Lin et al. (2000), expanded their previous iron QTL mapping study to include hydroponic growth and analysis in the same populations previously used (Lin et al., 1997). The polygene hypothesis was validated for the A15 x Pride B216 population with multiple QTL in the same locations as the QTL identified in the field study. In the Anoka x A7 population the QTL on MLG N (chromosome 3) was reconfirmed, explaining 82.9% of the phenotypic variation based on visual scores (Lin et al., 2000).

Since these initial proof-of-concept studies in hydroponic QTL mapping, hydroponics became the standard method used in nutrient studies as it allows for removal of specific nutrients without altering others, allowing for control of other potential variables. Manipulation of specific nutrients is extremely important in mapping specific QTL directly associated with the trait of interest rather than spurious QTL from uncontrolled environmental variables. Hydroponics are the standard for microarray and transcriptome profiling studies for nutrient studies including but not limited to potassium, phosphorus, salt, and iron (Kreps et al., 2002; Hammond et al., 2003; Gierth et al., 2005; O'Rourke et al., 2007; O'Rourke et al., 2007; Buckhout et al., 2009; O'Rourke et al., 2009).

## Near isogenic lines

In molecular breeding it is important to work with a specific population that will most efficiently identify genes associated with the trait of interest. Near isogenic lines (NILs) are immortal lines, in the sense that genetic variation is trapped and preserved through future rounds of self-fertilization to allow for multiple experiments with the same population and quasi-identical genotypes (Keurentjes et al., 2007). Near isogenic lines (in principle) vary only in the alleles responsible for a trait of interest, while identical for all other alleles (Keurentjes et al., 2007), proven to be extremely useful in identification of target genes in many crops (Young et al., 1988; Kim et al., 2008).

Near isogenic lines are obtained through crossing a genotype containing an allele of interest (donor parent) to a genotype containing the desired background alleles (recurrent parent) (Keurentjes et al., 2007). Progeny from the initial cross is then backcrossed to the recurrent parent and the resulting progeny screened for the trait of interest. Only those retaining alleles for the trait of interest are harvested and again backcrossed to the recurrent parent. For each generation of backcrossing to the recurrent parent, the proportion of the donor parent alleles decreases by 50%, meaning the ratio of the recurrent parent alleles to donor parent alleles in the BC1 will be 75:25, BC2: 87.5:12.5, …, BC6: 99.22:0.78, etc (Fehr, 1987). The alleles introgressed into the recurrent parent can be mapped using molecular markers to identify genomic locations of controlling alleles. After identification of the introgression, greater resolution can be achieved through additional reduction of the donor parent's genetic contribution (Keurentjes et al., 2007) via additional recombination with the recurrent parent (Goodstal et al., 2005). Marker assisted selection is used to identify NILs containing a subset of the whole introgression, called Sub-NILs (Frisch et al., 1999; Goodstal et al., 2005; Kim et al., 2008). Phenotyping of the Sub-NILs can aid in identification of specific genomic regions harboring genes contributing to the trait of interest (Monforte et al., 2001; Brouwer and St. Clair, 2004; Goodstal et al., 2005; Nichols et al., 2006; Kim et al., 2008).

In the soybean community many NILs have been created for public use. The USDA-ARS has specifically created NILs in two separate backgrounds to study iron

deficiency chlorosis (Bernard, 1975; Bernard et al., 1991). Each of these NILs (Clark/PI 547430 and Harosoy/PI 547698) contain introgressed alleles from the iron-inefficient donor parent T203 (Bernard, 1975). The authors were unable to find published literature utilizing the Harosoy / PI 547698 NIL for use in iron studies. The Clark / PI547430 NIL has become the standard NIL for use in studying iron deficiency chlorosis (O'Rourke et al., 2007; O'Rourke et al., 2007; O'Rourke et al., 2009; Rogers et al., 2009).

## Gene expression studies

Genetic research often aims to identify the gene(s) underlying traits of interest. Gene expression analyses using techniques such as microarray analysis or RNA-Seq takes advantage of the transition state between transcription and translation. Following transcription, a gene product exists as messenger RNA (mRNA) that will further be translated into a functional protein. Researchers are able to assess the relative amounts and changes of mRNA levels for a corresponding gene though various iron conditions to better delineate gene(s) associated with stress responses. Gene expression analysis has undergone many different variants since its conception.

The simplest method for tracking gene expression changes for a single gene or a subset of genes is through quantitative reverse transcriptase polymerase chain reaction (qRT-PCR). qRT-PCR is a variation of the PCR, reaction first introduced in

1986 (Mullis et al., 1986) designed to amplify DNA. Through the use of a retroviral enzyme, reverse transcriptase, the reaction produces a complementary DNA copy (cDNA) of the mRNA for further amplification through PCR (Rappolee et al., 1988). This process was first used to quantify cellular mRNA levels in the late 1980's and is still an accepted form of mRNA quantification (Becker-Andre and Hahlbrock, 1989; Wang et al., 1989; Gilliland et al., 1990). qRT-PCR has it's limitations, which include high inter- and intra-reaction error, in addition to time and resource inputs required for simultaneous quantification of many genes (Freeman et al., 1999).

With qRT-PCR, research is directed at a list of previously identified candidate genes. This presumption carries with it the very real potential of limiting a researcher's view of broad gene expression changes following a given stress. Microarray experiments have the potential to screen thousands of genes simultaneously, greatly broadening the scope of an experiment (Lockhart and Winzeler, 2000). However, due to the hybridization-based assay it is typically difficult to distinguish between and among members of a gene family. Affymetrix GeneChips® were used in much of the early transcriptome analysis of iron deficiency chlorosis in both soybean and *A. thaliana* (Thimm et al., 2001; O'Rourke et al., 2007; O'Rourke et al., 2007; Buckhout et al., 2009; O'Rourke et al., 2009).

O'Rourke and colleagues identified candidate genes through the use of microarray analysis in soybean grown for ~14 days in iron limiting hydroponic conditions

(O'Rourke et al., 2007; O'Rourke et al., 2007). This initial research was performed using the near isogenic lines Clark and PI547430. PI547430 lacks FRO2 (ferric chelate reductase) activity in roots when to iron-limiting conditions (O'Rourke et al., 2007). Further genomic dissection of the differences between these NILs identified 835 differentially expressed (DE) genes between iron-sufficient and iron-limiting conditions in Clark, and 200 DE genes in PI547430 with only a portion of those genes co-locating to known iron-efficiency QTL (O'Rourke et al., 2009). Considering the observed genomic locations of DE genes, the researchers hypothesized that the genetic difference between these NILs was most likely a mutation within a transcription factor acting transiently to control the expression of the many iron response genes outside known QTL regions (O'Rourke et al., 2009).

In contrast to the early soybean gene expression studies performed at 14 days after iron stress, *A. thaliana* researchers investigated iron deficiency response and gene expression changes at 24 hours post-iron stress (Thimm et al., 2001; Wang et al., 2002; Buckhout et al., 2009). This earlier view into gene expression changes has the potential to identify transcription factor activity responding to the plant's perception of iron stress rather than as a product of that response in the subsequent days. These early *A. thaliana* studies are responsible for the identification of the integral roles of the bHLH subfamily Ib, AtbHLH038, AtbHLH039, etc. (Vorwieger et al., 2007).

Further advancements in sequencing and transcriptional analysis yielded a paradigm shift in the field of transcriptomics (Wang et al., 2009). Next-generation sequencing (NGS) allows for deep sequencing of the transcriptome with higher throughput and improved cost-effectiveness than classical Sanger sequencing (Marguerat and Bähler, 2010). Just as the microarray world was dominated by commercial platforms, the RNA-seq technology is dominated by the Roche 454 system, the AB SOLiD, and the Illumina Genome Analyzer. While they vary as to how sequence reads are processed and produced, they all produce terabytes of sequence information in a few hours of run time. Applications for next-generation sequencing spans from full transcriptome profiling (RNA-seq) to genomic DNA sequencing, both *de novo* and re-sequencing. NGS varies from Sanger sequencing as the new platforms produce short (36 bp – 150 bp) fragments compared to the hundreds of base pairs produced from a single Sanger read. The advantage of the "next-generation" sequence is that tens of millions of reads are produced though a single run, allowing for greater coverage depth (Marguerat and Bähler, 2010). The greater depth of coverage allows researchers to address questions that weren't possible using older technologies (Ozsolak and Milos, 2011). Microarray studies suffer from a severe disadvantage, the inability to identify gene expression changes for genes expressed in very low or very high levels, RNA-seq can overcome these issues and provide an accurate estimation of expression level (Wang et al., 2009). RNA-seq was recently performed on a soybean line using 13 different tissues ranging from young leaf to nodule (Severin et al., 2010). The data from this experiment allows for

the identification of tissue- and time-specific gene expression and is publically available via various public databases such as Soybase.org.

RNA-seq data can be used for far more than identification of gene expression differences. Post-transcriptional regulation (Marguerat and Bähler, 2010), mapping of intron / exon boundaries (Wang et al., 2009), recognition of alternative splicing patterns and small RNA profiling (Ozsolak and Milos, 2011) are just some of the ways to use the tremendous amount of RNA-seq data generated from a single experiment. The ability to detect single nucleotide polymorphisms is another advantage and possible use of RNA-seq (Cánovas et al., 2010). SNPs have been successfully used to map QTL and also for the identification of NIL introgressions (Hyten et al., 2008; Kaczorowski et al., 2008; Bolon et al., 2010). The SNPs generated from and RNA-seq experiments are by nature located in the coding regions of the gene, and therefore have a greater potential to alter gene function (Cánovas et al., 2010).

## Experimental questions

Fortunately, many researchers have delineated the multiple methods of genetic control and identified the strategy 1 iron response genes and their interactions. IDC gene expression studies have adopted NILs as model populations for such research. Through previous studies, researchers have hypothesized that the different iron stress responses may be due to transcription factors, a mutation in the ferric

reductase gene, or both (O'Rourke et al., 2007; O'Rourke et al., 2009). With the recent release of the Williams 82 soybean sequence and gene annotations (Schmutz et al., 2010) we can now attempt to identify specific genes underlying the iron stress response. To better understand the mechanism behind IDC in soybean we must first identify the mechanism underlying our model system. Identification of the donor parent introgressions in the NILs is paramount to localizing regions of the genome that control iron-efficiency response. Do the donor parent introgressions co-localize with previously identified QTL? Do alleles within the introgressions and QTL vary between the recurrent parent and inefficient NIL? Using modern gene expression analysis, can gene(s) within the region regulated by iron availability be identified? Answers to these questions will significantly impact the soybean research community and provide a better understanding on how to properly use the NILs in further research. The better we are able to utilize the available tools, the quicker we will alleviate yield losses due to this devastating abiotic stress.

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## Chapter 3. An integrative approach to genomic introgression mapping

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## Abstract

Near-Isogenic Lines (NILs) are valuable genetic resources for many crop species, including soybean (*Glycine max*). The development of new molecular platforms promises to accelerate the mapping of genetic introgressions in these materials. Here, we compare some existing and emerging methodologies for genetic introgression mapping: single-feature polymorphism analysis, Illumina Goldengate SNP genotyping, and *de novo* SNP discovery via RNA-Seq analysis of next-generation sequence data. We used these methods to map the introgressed regions in an iron-inefficient soybean NIL and found that the three mapping approaches are complementary when utilized in combination. The comparative RNA-Seq approach offers several additional advantages, including the greatest mapping resolution, marker depth and *de novo* marker utility for downstream fine-mapping analysis. We applied the comparative RNA-Seq method to map genetic introgressions in an additional pair of NILs, exhibiting differential seed protein content. Furthermore, we attempted to optimize the comparative RNA-Seq approach by assessing the impact of sequence depth, SNP identification methodology and post-hoc analyses on SNP discovery rates. We conclude that the comparative RNA-Seq approach can be optimized with sufficient sampling and by utilizing a post-hoc correction accounting for gene density variation that controls for false-discoveries.

## Introduction

Near-Isogenic Lines (NILs) are valuable genetic resources for the identification of genomic regions and alleles responsible for trait variation. This is particularly true within the soybean (*Glycine max*) community, where NILs can be utilized to map the genomic regions responsible for the phenotypic variation of numerous traits, including seed composition, nutrient deficiency tolerance, maturity and several others (Bernard et al., 1991).

Historically, the mapping of NIL introgression sites has relied on a wide range of electrophoresis-based molecular tools, including isozyme, RFLP, AFLP and SSR analyses (Muehlbauer et al., 1989; Muehlbauer et al., 1991; Molnar et al., 2003; Nichols et al., 2006). More recently, automated genotyping technologies have accelerated the efficiency of genetic mapping. Such methods, including Single Feature Polymorphisms (SFP) analysis of microarray data and Single Nucleotide Polymorphism (SNP)-based genotyping methods, have been successfully applied to the mapping of soybean NIL lines and other mapping populations (Hyten et al., 2008; Kaczorowski et al., 2008; Bolon et al., 2010). However, the mapping resolution of all of these platforms is limited by the location and depth of informative markers available for a given species. Additionally, many of the markers will not be polymorphic for the specific set of genotypes utilized in a NIL introgression study.

The recent sequencing of the soybean genome (Schmutz et al., 2010) and recent advances in next-generation sequencing (NGS) technologies have the potential to overcome some of these limitations. Comparative NGS analyses of near-isogenic lines with their respective parental lines offers the possibility of identifying SNP polymorphisms that are unique to each NIL-parent group. Furthermore, comparative NGS analyses offer a potentially greater marker depth than previous mapping methods. Direct RNA sequencing (RNA-Seq) via NGS allows for these goals to be

accomplished at a lower cost, as the sequence coverage per SNP will be enriched within transcribed regions, thereby reducing the total amount of sequence required to confidently identify true polymorphisms.

In this study, we have attempted to map the introgression loci of the soybean NIL IsoClark (PI 547430) relative to its recurrent parent Clark (PI 548533). Previous studies of Clark and IsoClark NIL have characterized the differences between these lines at multiple levels of resolution, including morphological and transcriptional differences (O'Rourke et al., 2007a; O'Rourke et al., 2007b; O'Rourke et al., 2009). Compared to Clark, IsoClark is an iron-inefficient line, putatively caused by the introgression of iron-inefficient genetic material from the donor line T203. Iron deficiency chlorosis (IDC) remains a problem of great economic importance for soybean growers (Hansen et al., 2003). Therefore, the Clark – T203 – IsoClark family represents a soybean NIL family of both scientific and economic importance. Here, we have examined several genotyping technologies to improve the mapping of T203 introgression sites in IsoClark. Furthermore, we have applied our RNA-Seq based methods towards mapping introgression of two additional soybean NILs exhibiting seed composition differences (Nichols et al., 2006). We have compared some of the existing (Affymetrix SFP and Illumina Goldengate) and emerging technologies (Illumina NGS) for soybean introgression mapping, and speculate on what methods and analytical tools will be most useful in the post-genomic era.

## Results

*Introgression mapping using Affymetrix single feature polymorphisms*

Affymetrix SFP analysis was used to identify putative T203 introgressions in the NIL genotype IsoClark. SFP between Clark and IsoClark were considered indicative of potential T203 introgression sites. We compared 10-day and 14-day root transcripts from Clark and IsoClark, each grown hydroponically in iron-sufficient and iron-limiting

conditions (see Materials and Methods). This analysis indentified four obvious SFP clusters in the IsoClark genome, on chromosomes 3, 5, 8 and 16 (Table I, Figure 1). Based on these analyses, it appears that the T203 introgression on chromosome 3 is the largest of the four. Eleven additional SFPs were identified outside of these clusters and were scattered throughout the genome (Figure 1). These SFPs were inferred to be false-positives unless validated by additional genotyping platforms.

*Introgression mapping using the Illumina Goldengate platform*

The Illumina Goldengate genotyping platform was used to identify putative T203 introgressions in IsoClark. SNPs between Clark and IsoClark were considered indicative of potential T203 introgression sites. This analysis identified seven loci that were polymorphic between Clark and IsoClark (Table I, Figure 1). Four of these seven loci had been previously identified as likely introgressions based on SFP analysis. One of the remaining loci, on chromosome 13, co-localized with a solo SFP. The two remaining loci, near the top of chromosome 8 and towards the bottom portion of chromosome 4, did not co-localize with any previously identified SFP (Table I, Figure 1).

*Introgression mapping using two SNP calling methods on a single-library of Illumina RNA-Seq data*

Illumina RNA-Seq data was used to identify putative T203 introgressions in IsoClark. SNPs identified *de novo* between Clark and IsoClark transcripts were mapped to the soybean reference genome and their genomic positions were considered as potential T203 introgression sites. Altogether, RNA-Seq SNP discovery was performed in four ways: Single-library comparisons using Method 1 (see description below and in “Materials and Methods”), four-library comparisons using Method 1, single-library comparisons using Method 2 (see description below and in “Materials and Methods”), and four-library comparisons using Method 2. This approach

allowed us to compare the sensitivity and accuracy of RNA-Seq SNP discovery across different analytical methods and sequence depths.

For the single-library comparisons, Illumina NGS was performed on the RNA isolated from the 10-day iron-limiting root samples, resulting in 30,897,337 short read sequences. These sequences were then aligned to the *Glycine max* genome (Glyma1.01 genome assembly) to identify SNPs between Clark and IsoClark in protein coding regions. SNPs were considered indicative of T203 genomic introgression sites. Two methods were used to identify SNPs and to gain a measure of confidence in the SNPs determined by each method.

Method 1 used the program SOAP2 (Li et al., 2009b) to align the short read sequences to the soybean genome (Schmutz et al., 2010). SNPs were then identified from the SOAP2 alignment using program SOAPsnp (Li et al., 2009a). Only unique alignments were considered. SNPs were screened for a minimum base-call quality score of ten, average quality score of 20, minimum best hits of four and no ambiguous bases.

Method 2 used the program GSNAP (Wu and Serban, 2010) to align the short read sequences to the soybean genome. GSNAP can handle short read sequences that fall over splice junctions. All mismatches from the best alignment for a read were tallied in a database and a reporting script required the potential SNP to meet the following criteria: a minimum of two unique alignments, average quality score of 20 and a minimum of 80% of the reads uniquely aligned to the position calling the SNP within a sample. This data was further filtered, requiring a minimum coverage of four short read sequences in the NIL pair and requiring a maximum less than 50% in one line calling the SNP within a sample.

There were 172 SNPs identified by Method 1 (Supplemental Table S1) and 255 SNPs identified using Method 2 (Supplemental Table S2) when applied to the 10-day root RNA-Seq single-library comparison. The putative introgression sites previously identified by SFP and Goldengate SNP analyses accounted for 159 of the 172 SNPs identified using Method 1 and 158 of the 255 SNPs identified using Method 2 (Table I). Thus, the larger introgression sites identified using SFP and Goldengate analyses were generally confirmed by the SNPs called by each method, particularly the sites on chromosomes 3, 5 and 16 (Table I). Introgression sites on chromosomes 4 and 13, which were tentatively identified by SFP and/or Goldengate analyses, were strongly confirmed by the RNA-Seq data (Table I). Surprisingly, the two chromosome 8 introgression sites identified by SFP and/or Goldengate analyses were not strongly supported by the RNA-Seq SNP data obtained from this single-library comparison (Table I).

*Introgression mapping using SNP data from multiple Illumina RNA-Seq libraries*

To determine if the quantity of the short read sequence data for identifying introgression sites was limiting sensitivity, we analyzed eight additional Illumina RNA-Seq data sets using Method 1 and Method 2; four from Clark and four from IsoClark plants grown for 19 days after which the plants were exposed to iron sufficient and iron limiting conditions for 24 hours. We refer to this comparison as the 'four-library comparison.' The 19 day root and leaf data set contained 91,303,822 short read sequences. Therefore, this experiment included four times the number of experimental conditions and approximately three times the number of short read sequences than was used in the RNA-Seq single-library comparison described in the previous section.

The RNA-Seq four-library comparison of the 19 day samples identified 261 SNPs with Method 1 (Supplemental Table S3) and 469 SNPs with Method 2 (Supplemental Table S4). The Method 1 SNPs appeared primarily in the larger introgression sites,

with only 14 located outside of these regions. The Method 2 SNPs were found outside of the larger introgressions at a substantially higher frequency (Table I); the locations of these SNPs were scattered across the genome. Both Method 1 and Method 2 identified the two introgression sites on chromosome 8 that were essentially missed by the single-library comparison (Table I). However, the Method 2 analysis identified these sites at a much higher frequency.

Without a substantial accumulation of SNPs in one region in the genome or the coincidental overlap of Affymetrix SFPs or Illumina Goldengate polymorphisms with the next generation sequencing SNPs, it may be difficult to distinguish between a site of introgression and an RNA-Seq false positive SNP call. This problem is further confounded by variations in gene density along each chromosome. In order to identify all or nearly all of the prominent T203 introgression sites a statistical method for distinguishing between introgression sites and false positives randomly scattered across the genome was required.

*Accounting for gene density increases the sensitivity of introgression mapping*

The RNA-Seq data identified SNPs based on short read sequences taken from protein coding regions. To account for gene density and to provide a statistical measure of SNP clustering, an algorithm for SNP clustering utilizing a 'bootstrap method' was developed.

The simulated density of SNPs that might be found within a chromosomal interval by random chance was determined by choosing genes at random with replacement. For example, if 204 SNPs were identified on chromosome 3, then the position of 204 genes from chromosome 3 were chosen at random with replacement. The position of the gene was estimated by averaging the start and end coordinates. This process was repeated 1,000 times to obtain an estimate of the mean SNP density and standard deviation for a given interval. Intervals in the genome that contained a

significantly higher density of SNPs than would be expected at random were inferred to be introgressed. An interval was considered to contain a significantly higher density of SNPs if there were three or more SNPs in the interval and the number of SNPs was greater than three standard deviations above the mean SNP density expected by random chance for a given interval. When the bootstrap method was applied to SNPs identified using Method 1 and Method 2 on the RNA-Seq single-library comparison (10 day root), significant intervals were identified on chromosomes 3, 4, 5, 13 and 16 (Figure 2 a,b). SNPs identified using Method 1 and Method 2 from the RNA-Seq four-library comparison (19-day root and leaf) revealed the same introgression sites and additional sites on chromosome 8 (Figure 2 c,d). The introgression sites identified in the bootstrap method are conservative estimates of the full introgression site, but account for 80% of the single-library SNPs, and 93% of the four-library SNPs identified in Table 1.

These data suggest that the quantity and coverage of short read sequences present in the RNA-Seq four-library comparison may alone be sufficient to identify the same introgression sites as was determined from a combination of SFP, Goldengate, and RNA-Seq single-library comparison. More SNPs pass through the filtering criteria with the increased number of reads from the RNA-Seq four-library comparison. Additionally, the sensitivity of the RNA-Seq four-library comparison is aided by the sampling of RNA from different tissue types, assuring that a more comprehensive set of transcripts (and genome space) was surveyed as compared to the single-library comparison.

*Application of the advanced NGS introgression mapping on a second NIL pair*

To further validate our method for determined introgression sites, we performed the Method 2 analysis followed by the bootstrapping post-hoc method on an additional set of two NILs, HiPro and LoPro. The two NILs, derived by introgressing *G. soja* into a *G. max* background (see “Materials and Methods”), exhibit differential seed

protein content (Nichols et al., 2006; Bolon et al., 2010). In this case, we were interested in identifying differential introgression patterns between the two lines, therefore the RNA-Seq SNP comparison was performed directly between HiPro and LoPro, rather than the NILs and the *G. max* recurrent parent.

Twenty-eight libraries taken from a variety of tissues and seed developmental stages were included in the RNA-Seq SNP analysis. This data included 97,637,480 short read sequences. Within this seed-protein NIL data, 387 SNPs were identified (Supplemental Table S5). Approximately 40% (153 out of the 387 SNPs) were located within genomic regions determined to be significant based on our bootstrap algorithm. The remaining SNPs in each experiment were randomly scattered across the genome. Our method was able to easily identify the well-known introgressed region on chromosome 20 (Nichols et al., 2006; Bolon et al., 2010). It also identified regions on chromosome 16 and chromosome 18 that were previously unknown (Figure 3). SNP Goldengate analysis on HiPro and LoPro validated all three of these introgressions (data not shown).

*Introgression validation*

The IsoClark introgression sites on chromosomes 4, 5, 13, and 16 were confirmed through resequencing by PCR amplification of Clark, IsoClark and T203 DNA (the introgression on chromosome 3 is well-established and did not require further validation). Additionally, candidate introgressions were also validated with SSR markers. SSR markers BARCSOYSSR_04_1282, BARCSOYSSR_04_1286, BARCSOYSSR_04_1297 and BARCSOYSSR_04_1299 were polymorphic between Clark and IsoClark on chromosome 4. Similarly, SSR markers Sat_217 and Sat_271 were polymorphic on chromosome 5. SSR marker Satt228 was polymorphic on chromosome 8 (nucleotide position 45,272,500). SSR marker Satt490 was polymorphic on chromosome 13. SSR markers BARCSOYSSR_16_1047, BARCSOYSSR_16_1057, BARCSOYSSR_16_1059 and BARCSOYSSR_16_1070

were polymorphic on chromosome 16. All markers and positions are available on Soybase (http://soybase.org). Only the predicted introgression between 2.0-3.5 Mb on chromosome 8 was not confirmed through resequencing or SSR markers due to problematic primers or lack of SSR markers in that region. This region, however, has additional support from Illumina Goldengate SNP data. A similar introgression validation was performed for the HiPro and LoPro NILs. Resequencing by PCR amplification confirmed the candidate introgression on chromosome 16 but was unable to confirm the introgression on chromosome 18 (the introgression on chromosome 20 is well-established and did not require further validation). However, all three of these introgressions have been validated by Goldengate SNP data (see previous section).

## Discussion

### *Comparison of SFP, SNP Goldengate and NGS RNA-Seq for genetic introgression mapping*

The Affymetrix SFP and Illumina Goldengate SNP methodologies are established as genetic mapping approaches that are far more efficient than electrophoresis-based methods for genome-wide mapping applications (Hyten et al., 2008; Kaczorowski et al., 2008; Bolon et al., 2010). In our introgression mapping for the IsoClark NIL, the SFP and Goldengate platforms primarily identified an overlapping set of putative introgression sites (Figure 1). The Goldengate platform identified seven introgression sites, which were validated in subsequent experiments, indicating that this platform is robust for introgression mapping. The SFP analysis identified five of these seven sites. However, the SFP analysis also identified ten polymorphic markers outside of these larger introgressions, some of which are believed to be false-positives.

The SFP and Goldengate SNP mapping approaches are relatively efficient and inexpensive. However, in our analyses, the Affymetrix SFP and Goldengate platforms identified a relatively small number of polymorphic markers (Table I). The low number of markers limits our ability to resolve the introgression boundaries and leaves open the possibility of missing smaller introgressions altogether.

The RNA-Seq methodologies clearly identified a much greater number of polymorphic loci within the known introgression sites (Table I). The increased marker coverage allowed us to identify the introgression boundaries at a higher resolution. The two introgressions on chromosome 8, however, were exceptional in this regard. The introgression at positions 2.0-3.5 Mb was easily identified by the Goldengate approach and the introgression at positions 43.9-47.0 Mb was easily identified by the SFP approach. It is unclear what properties of the chromosome 8 introgressions cause this phenomenon; the gene content and transcription levels are both relatively high in these regions (Libault et al., 2010; Schmutz et al., 2010). The other five larger introgressions were most clearly identified by the RNA-Seq approach, regardless of which of the four RNA-Seq analyses was considered.

Importantly, the RNA-Seq approach offers two important benefits that standardized mapping platforms do not. First, the SNP markers identified via RNA-Seq are specific to the genetic materials of interest. By contrast, the soybean Goldengate SNP panel is derived from different genetic materials than was used in our study; many of the 1536 SNPs would be non-polymorphic between our original parents, Clark and T203, and would therefore be uninformative for this study. The RNA-Seq data, however, identifies SNPs that are necessarily polymorphic between our genetic materials of interest. The SNPs identified *de novo* by RNA-Seq can be directly used for fine-mapping on subsequent generations of this material using a custom SNP genotyping platform, like the MassARRAY (Sequenom, San Diego, CA) or SNPlex (Applied Biosystems, Foster City, CA) platforms (Ding and Jin, 2009). Second, the

RNA-Seq data may be mined for transcriptional differences or genetic alterations between Clark and IsoClark that may identify candidate genes that drive the differential iron susceptibility observed between the lines. The Affymetrix data will also allow for the analysis of transcript differences, however the RNA-Seq data provides a larger sampling of transcripts and also permits the possible identification of frame-shift or nonsense mutations within introgressed loci.

We noted two primary drawbacks to the RNA-Seq approach. First, this technology is currently more expensive than using standardized platforms. This problem should be mitigated in the near future, as NGS is expected to become more affordable and accessible. Second, this approach targets mRNA transcripts, therefore our marker depth is necessarily biased for gene rich regions. Although we have applied a bootstrapping method to correct for gene density biases, severely gene-poor regions may not be represented in our analyses. Additionally, exonic regions tend to have more highly conserved sequences than non-coding regions. Introgression mapping could be improved if the next-generation sequencing technology were performed directly on DNA rather than RNA. With current technology, this would provide better genomic coverage but may not provide the sequence depth required for confident SNP identification at a reasonable cost. A more cost-effective strategy would be to perform comparative NGS on reduced representation genomic DNA libraries (Van Tassell et al., 2008; Fu et al., 2010). As sequencing technologies improve and the cost per library decrease, the limitations of sequencing depth and read length will no longer be an issue.

Altogether, our data indicate that the RNA-Seq approach offers the greatest depth and resolution for mapping most genomic introgressions, however the SFP and Goldengate approaches were more efficient for mapping certain introgressions. The combination of SFP, Goldengate and RNA-Seq data does not necessarily assure that we have identified all the introgressed loci in these NILs. For example, when we

combined the unique SNPs identified using Method 1 and Method 2, we noted that a cluster of four SNPs was identified within a ~480 kb interval on IsoClark chromosome 2 (positions 42.35-42.83 Mb). Intuitively, it would appear that these SNPs may define a genetic introgression, however this region was not identified as significant by our bootstrap analyses using each Method (1 and 2) individually. Using the methods described here, introgressions greater than 0.5-1.0 Mb can be efficiently mapped with relatively high resolution, assuming there is an adequate level of sequence polymorphism between the parental lines. However, it may be difficult to identify introgressions that are small, located within gene-poor regions, or located within regions of low diversity between parental lines. Identification of such introgressions, such as the putative introgression on IsoClark chromosome 2, may require "manual" rather than automated analytical approaches, along with sufficient validation.

*Optimizing NGS RNA-Seq for genetic introgression mapping*

We tested the impact of three different factors on RNA-Seq introgression mapping: 1) Sequence depth; 2) SNP identification methodology; 3) Post-hoc analysis accounting for gene density.

Clearly, the RNA-Seq method is more effective for introgression mapping when the sequence depth and tissue sampling range is expanded. Our data indicates that our four-library comparison with different tissue types and treatments identified greater than 1.5-times more SNPs than a single-library comparison (Table I). Consequently, introgression sites that were either poorly identified or not identified in the single-library analysis (namely, the two introgressions on chromosome 8) were more confidently identified in the four-library comparison.

We applied two different SNP-identification methodologies to the RNA-Seq data, generically called Method 1 and Method 2 (see Materials and Methods). The two

methods were each applied to the RNA-Seq single-library and four-library comparisons of Clark and IsoClark. These two identification methods appeared to offer an interesting trade-off in benefits. Method 1 appeared to be the more conservative approach, as it identified fewer SNPs. However, only 5-7% of the SNPs were located outside of the putative larger introgression regions identified by SFP and Goldengate genotyping; it is unclear what proportion of these SNPs represent false-positive calls. Method 2 appeared to be the more liberal method, identifying far more SNPs than Method 1 (Table I). A high percentage of SNPs fell outside of the putative larger introgressions (~22-38%), indicating that this method may foster a higher rate of false-discoveries. However, Method 2 was more effective at identifying recalcitrant introgressions, primarily the two chromosome 8 introgressions. It is worth noting that the differential SNP discovery rates of Method 1 and Method 2 are not necessarily a function of the algorithms used (Li et al., 2009a, 2009b; Wu and Serban, 2010), but are also influenced by the stringency of the identification parameters. Thus, either method could be performed with greater or reduced stringency, as needed by the user.

The post-hoc bootstrap method was used to distinguish true introgressions from false-discoveries by accounting for regional SNP clustering rates and gene density differences across the genome. This method proved most valuable when applied to the Method 2 SNP calls, as this was the more permissive identification method and presumably identified a higher relative rate of false-positives. The bootstrap method, when applied to the Method 2 four-library comparison SNPs, identified all of the seven larger introgressions, including the recalcitrant introgressions on chromosome 8.

The data analyses presented here covered a range of tissues and conditions and were performed on a well-studied organism with a set of high-quality predicted gene models. Our analyses indicate several regions of introgression that have been

confirmed for two different NILs. However, had the number of expressed genes been significantly lower than what is found in our data sets, it may be prudent when accounting for gene density with our bootstrap method to use as input to our scripts only expressed genes instead of every gene predicted in the genome.

## Conclusion

In this report, we show that SFP, Illumina Goldengate and RNA-Seq are complementary methods for identifying genetic introgressions in near-isogenic lines. We show that the depth of coverage of SNPs identified from next generation sequencing RNA-Seq technology in combination with a bootstrapping method is an effective tool for identifying introgression sites. As new NGS technologies arise (Eid et al., 2009; Rusk, 2009) and become more affordable, NGS of genomic DNA at greater depth will become feasible for mapping purposes.

## Materials and Methods

*Plant materials*

Two pair of soybean (*Glycine max*) NILs were used in this study: 1) A NIL line selected for differential iron deficiency chlorosis susceptibility and; 2) A NIL pair selected for differential seed protein. The iron-efficient parent line Clark (PI 548533) and the iron-inefficient NIL IsoClark (PI 547430) have been extensively described in previous studies (O'Rourke et al., 2007a; O'Rourke et al., 2007b; O'Rourke et al., 2009). The IsoClark NIL was derived from crossing Clark with iron-inefficient T203 (PI 54619), followed by five subsequent backcrosses to Clark. Subsequent self-mating yielded the iron-inefficient NIL IsoClark.

The seed protein NIL pair were derived from introgressing *G. soja* (PI468916) into *G. max* (A81-356022) and have been previously described (Nichols et al., 2006; Bolon et al., 2010). The $BC_5F_5$ plant P-C609-45-2-2 was heterozygous for the LG I protein QTL introgression from *G. soja*. The derived $BC_5F_6$ NILs segregated for the LG I protein QTL introgression. The $BC_5F_6$ line LD04-15154 (HiPro) maintained the introgression and the corresponding high seed protein phenotype. The $BC_5F_6$ line LD04-15146 (LoPro) segregated out the introgression QTL and exhibited the low seed protein phenotype.

*RNA sampling of Clark and IsoClark root tissues from iron sufficient and iron limiting conditions (10-day and 14-day)*

Clark and IsoClark were grown in hydroponic conditions as described in (O'Rourke et al., 2009). Both genotypes were exposed to two different hydroponic treatments, iron sufficient (100 μM $Fe(NO_3)_3$) and iron limiting (50 μM $Fe(NO_3)_3$). Roots were collected and flash-frozen in liquid nitrogen following ten and 14 days of growth. RNA samples were purified from both Clark and IsoClark root tissues using the TRIzol method (Invitrogen, Carlsbad, CA) and DNAase treated with the Ambion DNA-*free* kit according to the manufacturer instructions (Applied Biosystems/Ambion, Austin, TX). The samples were then further purified using the RNeasy mini kit (QIAGEN Inc., Valencia, CA). These RNA samples are referred to as the '10-day root' and '14-day root' samples, respectively.

*RNA sampling of Clark and IsoClark tissues following iron-shock (19-day root and leaf)*

Clark, Isoclark and T203 seeds were germinated using germination paper soaked in water for 6 days in an growth chamber set at 27 °C. Plants were grown in hydroponic conditions as described in O'Rourke et al. (2009) in the greenhouse for 13 days which coincided with the fully-open first trifoliate. At this time the plants were placed in either iron sufficient or deficient conditions. Briefly, the plant roots were rinsed in

six buckets of water for 15 seconds minimum in each bucket then returned to a fresh hydroponic bucket either sufficient in iron (100 μM $Fe(NO_3)_3$*$9H_20$) or deficient in iron (50 μM $Fe(NO_3)_3$*$9H_20$).

Plants were grown for 24 hours in their new iron environment when the trifoliates, trifoliolates, and roots were harvested and placed in individual tubes and flash frozen in liquid nitrogen until stored at –80 °C. Total RNA was isolated using RNeasy mini kit (QIAGEN Inc., Valencia, CA) following the Qiagen protocol for everything except the final elution step that was extended by five minutes to optimize RNA concentration. Quality was checked using a NanoDrop Spectrophotometer (Thermo Scientific, Wilmington, DE). These RNA samples from root and leaf in iron sufficient and deficient conditions are referred to as the '19-day' samples.

*RNA sampling of the seed-protein NIL*

Seeds from NILs generated from *G. max* (A81-356022) and *G. soja* (PI468916) specific for the LG I seed-protein QTL were grown in growth chambers to mimic Illinois field growing conditions, as described by Bolon et al. (Bolon et al., 2010). Briefly, 14 tissues that included seven stages in seed development were harvested from the two near-isogenic lines: HiPro (LD0-15154) and LoPro (LD0-15146), with a high and low seed-protein phenotype. RNA was extracted as described in Bolon et al. (2010). These RNA samples are referred to as the 'HiPro' and 'LoPro' NIL samples.

*Single feature polymorphism analysis*

The 10-day and 14-day root RNA samples were labeled and hybridized to the Affymetrix® GeneChip® Soybean Genome Array according to the manufacturer's instructions (Affymetrix, Santa Clara, CA). Three biological replicates for each genotype by treatment were collected and hybridized.

Single feature polymorphisms (SFPs) between Clark and IsoClark were identified based on the Affymetrix data as previously described (Xu et al., 2009). SFPs between Clark and IsoClark identified at any of the four levels of comparison (10-day iron sufficient, 10-day iron limiting, 14-day iron sufficient or 14-day iron limiting) were included in the downstream SFP analyses. The Affymetrix SFP probes-sets were mapped back to the Williams 82 soybean genome reference sequence (Schmutz et al., 2010). T203 genomic introgressions into IsoClark were inferred based on SFP co-localization clusters.

*Illumina Goldengate mapping*

Clark, IsoClark and T203 DNA samples were purified using the Qiagen DNeasy method according to the manufacturer (QIAGEN Inc., Valencia, CA). These DNA samples were genotyped using the Illumina Goldengate 1536-SNP platform for soybean, as has been previously described (Hyten et al., 2010).

*Illumina Next-generation sequencing of RNA*

Illumina next generation sequencing platform was used to identify SNPs between Clark and IsoClark. The three Clark and IsoClark RNA biological replicates from the 10-day root tissues in the iron limiting condition were pooled within each genotype and submitted for next generation sequencing analysis. Similarly, the 19-day root and leaf RNA samples grown in iron sufficient and deficient conditions were each pooled among three biological replicates within each genotype and submitted for next generation sequencing analysis. Therefore, eight different pooled samples from the 19-day study were sequenced, consisting of Clark root and leaf in stressed and unstressed conditions and IsoClark root and leaf in stressed and unstressed conditions.

RNA-Seq data acquisition from Illumina sequencing methods were carried out by the National Center for Genome Resources (NCGR). These techniques along with

RNA-Seq data analysis methods for the seed-protein NILs have been previously described in “RNA-Seq Atlas of *Glycine Max*” by Severin et al. (in press). Breifly, poly-A containing RNA isolated from total RNA was converted to cDNA. Illumina adapters were added by ligation and size selected by electrophoresis for ~500 bp fragments. The purified DNA libraries were PCR amplified for 15 cycles and assessed by Nanodrop ND-1000 for quality and quantity before loading onto an Illumina flow cell. Short reads of size 36 bp were obtained and processed through image analysis, base-calling quality filtering, and per base confidence scores. Sequence reads were then aligned to the 8X soybean genome sequence assembly (Glyma1.01 genome assembly). The unique reads obtained from the alignment were normalized using RPKM (Reads/Kb/Million) and used to approximate digital gene expression values for the predicted gene models.

*Next-generation sequencing SNP discovery using Method 1*

Software SOAP2 (Li et al., 2009b) and SOAPsnp (Li et al., 2009a) were used for SNP discovery between Clark and IsoClark genotypes using an RNA-Seq single-library comparison (the 10-day iron limiting root samples). A customized pipeline was developed for this analysis. Briefly, 15,260,698 36-base read sequences of Clark and 15,636,639 reads of IsoClark from Illumina sequencing were aligned to the soybean genome sequence (Schmutz et al., 2010) using SOAP2, respectively. Only the unique alignment hits were selected by setting the program parameter r=0. All position loci of the alignment files were screened by SOAPsnp for SNPs, and pair compared between Clark and IsoClark. The potential SNPs were selected using criteria of minimum base-call quality of ten, average quality of 20, minimum best hits of four, and not an ambiguous base (SNP ≠ “N”).

In order to plot the SNP alignment, all short read sequences that encompassed the SNP positions were extracted from the original Illumina read files. For each SNP, the short reads of Clark and IsoClark, and the 68-base genomic sequences that

encompass the SNPs in the middle were aligned by using emma of EMBOSS suite (Rice et al., 2000). The aligned sequences were plotted using EMBOSS prettyplot program.

The locations of the SNPs discovered were extracted and an R script was created for mapping these SNPs onto soybean chromosomes using a 1000 base window size. The protocol described above is referred to as the RNA-Seq 'Method 1'.

To determine the difference in sensitivity between an RNA-Seq single-library comparison and a four-library comparison, Method 1 was also applied to the four 19 day samples of Clark and IsoClark: root under sufficient iron conditions, root under iron limiting conditions, leaf under iron sufficient conditions and leaf under iron limiting conditions. The pooled 19 day samples contained 32,030,175 36-base read sequences in Clark and 59,273,647 read sequences in IsoClark.

*Next-generation sequencing SNP discovery using Method 2*

For comparison, the software GSNAP (Wu and Serban, 2010) was also used for SNP discovery between Clark and IsoClark genotypes on the RNA-Seq single-library comparison (the same 10-day iron limiting root samples as was used for Method 1) and the 19 day four-library comparison. Briefly, Clark and IsoClark reads from Illumina sequencing were each aligned to the soybean genome sequence using GSNAP. The alignment program was set to allow for alignment over a splice junction. Alignments of short read sequences without at least 34 matches were not considered. The following requirements were also needed for a SNP to be called: a minimum of two unique alignments calling the SNP, average base-call quality of 20 and minimum of 80% of the reads uniquely aligned to the position calling the SNP. SNPs were further screened for a minimum of short read coverage of four and a difference in allelic frequency between the NILs of 50%. The protocol described above is referred to as the RNA-Seq 'Method 2'.

*Statistical significance and visualization of SNP clusters*

A specific number of SNPs were found on each chromosome using Method 1 and Method 2. To determine which regions on the chromosome had a significantly higher density of SNPs than might be found by random chance, the same number of SNPs found on each chromosome was simulated using a bootstrapping protocol (Supplemental File S1). Since the sequence used to identify SNPs was taken from protein coding regions, the locations of the simulated SNPs were generated from the average position of each gene on the chromosome chosen at random. The chromosome was divided into 500,000-nucleotide tandem intervals, resulting in a total of 1908 intervals analyzed across the 20 chromosomes. The average number of simulated SNPs and standard deviation within each 500,000-nucleotide interval were determined from 1000 simulations. SNPs in an interval were considered significant if the number of SNPs was greater than three standard deviations above the simulated SNPs in the interval and the total SNP count in the interval was three or more. Once the intervals with significant SNP clustering were determined, these regions were plotted onto a scaled version of each chromosome using the rectangle drawing function in R. The protocol described above is referred to as the 'bootstrap method'.

*Laboratory confirmation of genomic introgressions identified in silico*

Genomic regions identified as candidate introgressions were identified and a small portion of the sequence in the region was extracted from Soybase (http://soybase.org). Primers were used to PCR amplify Clark, Isoclark and T203 DNA. PCR reactions were conducted using a touchdown method starting with a 60 °C annealing temperature and decreasing by half a degree each cycle for 29 cycles. Choice™ Taq (Denville Scientific, Metuchen, NJ) was used and PCR reactions were at concentrations according to the manufactures protocol.

PCR products were cleaned using an exonuclease 1 and shrimp alkaline phosphatase (EXO/SAP) method. Cleaned PCR products were used in a cycle sequencing reaction. The sequencing protocol was adapted from the Applied Biosystems BigDye® Terminator v3.1 Cycle Sequencing kit (Applied Biosystems, Foster City, CA). Sequencing was done on an Applied Biosystems 3730xl 96-capillary 50 cm array DNA analyzer. Sequence was end trimmed using Applied Biosystems Sequence Analysis v5.2 (Applied Biosystems, Foster City, CA). Sequence ends were trimmed until fewer than four of 20 bases had quality scores less than 20. The sequences generated from each primer pair were aligned using Sequencher v4.9 (Gene Codes Corporation, Ann Arbor, MI).

Additionally, single sequence repeat (SSR) markers were chosen from Soybase (Soybase.org) in candidate regions of introgression in the IsoClark line. PCR reactions were conducted using a touchdown method starting with a 60 °C annealing temperature and decreasing by half a degree each cycle for 29 cycles. Choice™ Taq (Denville Scientific) was used and PCR reaction was at concentrations according to the manufactures protocol. Bromophenol blue loading dye was added to the PCR reaction and loaded onto a 6% polyacrylamide gel ran 250 volts for 2.5 hrs. Bands were visualized at 312 λ using a grayscale digital camera (Scion Corporation). The lowest band was scored and compared to 10 and 100 bp ladder.

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Table 1. *Introgression mapping comparison*

| Chromosome | Position | Approximate Size | SFP | Golden Gate | RNA-Seq Single Library (Method 1) | RNA-Seq Four Library (Method 1) | RNA-Seq Single Library (Method 2) | RNA-Seq Four Library (Method 2) |
|---|---|---|---|---|---|---|---|---|
| | *Mb* | *Mb* | | | | | | |
| Gm03 | 36.3–45.8 | 9.2 | 13 | 15 | 105 | 120 | 102 | 204 |
| Gm04 | 44.7–45.6 | 1 | 0 | 1 | 7 | 21 | 6 | 23 |
| Gm05 | 38.2–39.5 | 1 | 4 | 2 | 15 | 24 | 17 | 34 |
| Gm08 | 2.0–3.5 | 1.5 | 0 | 4 | 1 | 2 | 1 | 14 |
| Gm08 | 43.8–47.0 | 3.2 | 7 | 1 | 0 | 8 | 2 | 17 |
| Gm13 | 35.5–35.9 | 0.5 | 1 | 1 | 10 | 24 | 7 | 23 |
| Gm16 | 30.4–31.9 | 1.5 | 6 | 3 | 21 | 48 | 23 | 50 |
| Other | N/A | N/A | 10 | 0 | 13 | 14 | 97 | 104 |
| Total | N/A | N/A | 41 | 27 | 172 | 261 | 255 | 469 |

Comparison of Clark-IsoClark polymorphism rates at larger introgression sites using three different genotyping platforms. The number of SNPs identified from the RNA-seq data depends on the SNP-calling algorithm and the number of libraries compared (Single-library comparisons versus four-library comparisons). The RNA-seq method 1 and method 2 analyses protocols are described in the “Materials and Methods.” N/A, Not Applicable.

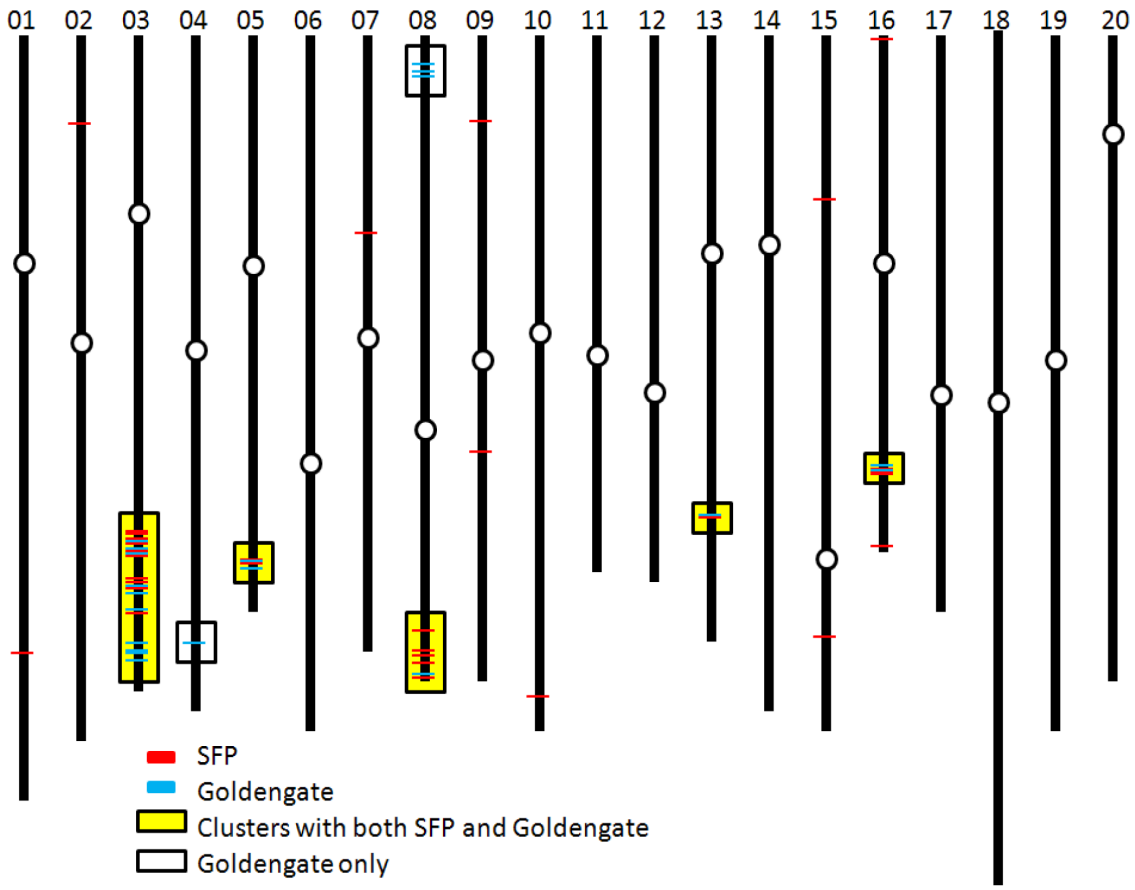


**Figure 1**. Chromosomal positions of Affymetrix SFPs and Goldengate SNPs identified between Clark and IsoClark. Chromosomes are labeled at the top according to number and centromere positions are shown as open circles. Red lines indicate the physical map positions of Affymetrix SFPs and blue lines indicate the physical map positions of Goldengate SNPs. Genomic regions co-incident for both SFPs and SNPs are indicated with yellow boxes and genomic regions exhibiting only Goldengate SNPs are indicated with clear boxes.

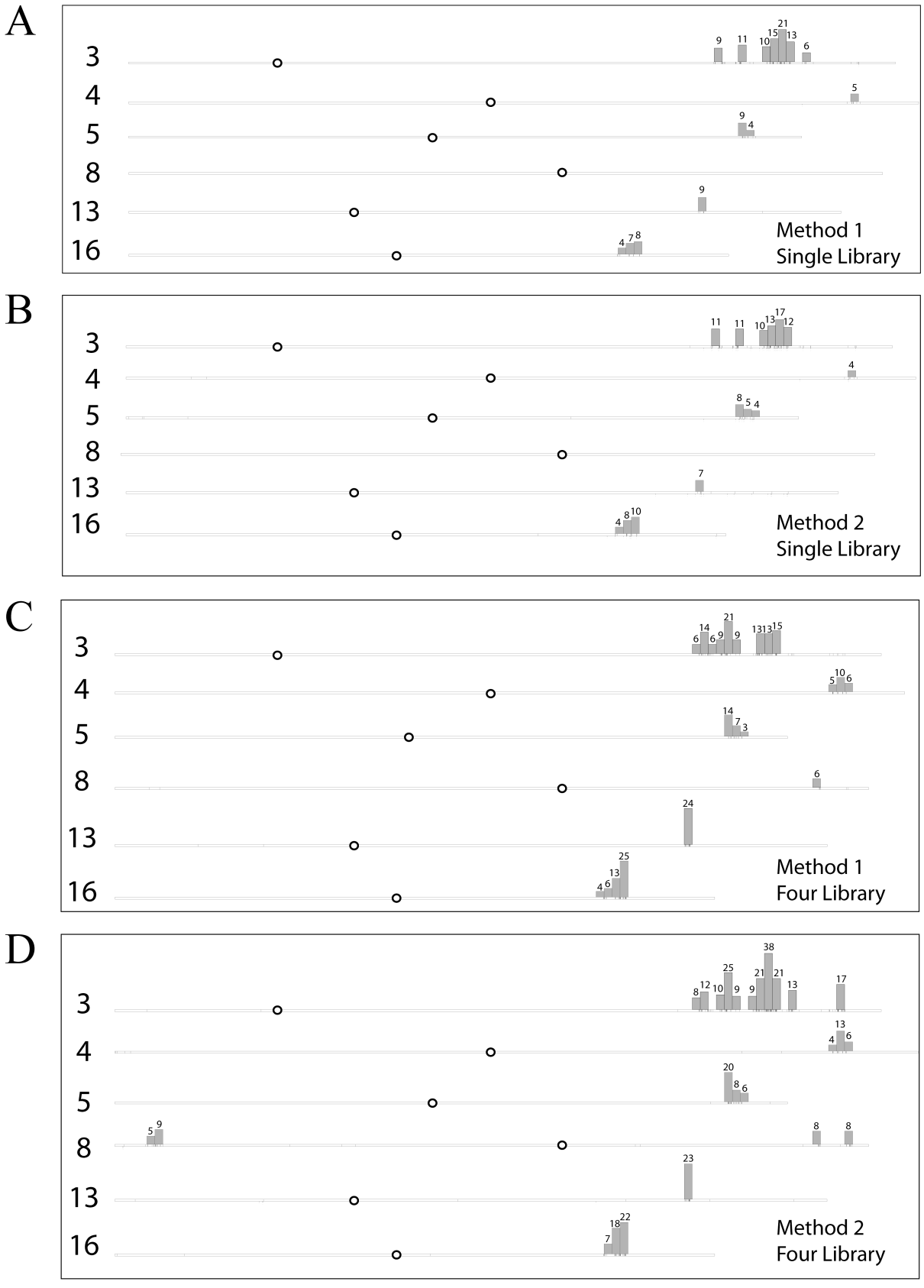
A
3
4
5
8
13
16
Method 1
Single Library
B
Method 2
Single Library
C
Method 1
Four Library
D
Method 2
Four Library

**Figure 2**. Significant intervals of SNP clustering between the Clark and IsoClark lines were found on six chromosomes: 3, 4, 5, 8, 13 and 16 as determined from the bootstrap method. Chromosomes are labeled on the left according to number and centromere positions are shown as open circles. Vertical boxes indicate 500,000-nucleotide intervals. The number of SNPs found in each interval is indicated above the interval. A) Clustering of SNPs obtained from the 10-day root data using Method 1 on the single-library comparison. B) Clustering of SNPs obtained from the 10-day root data using Method 2 on the single-library comparison. C) Clustering of SNPs obtained from the 19-day root and leaf data using Method 1 on the four-library comparison. D) Clustering of SNPs obtained from the 19-day root and leaf data using Method 2 on the four-library comparison.

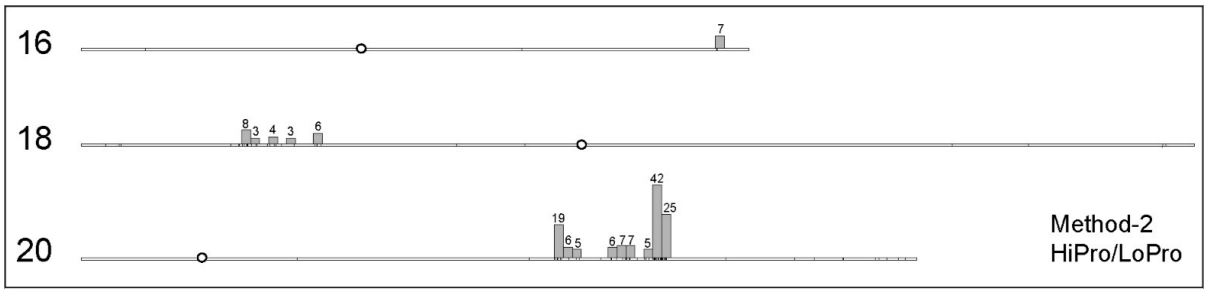


**Figure 3**. Significant clusters of SNPs for the seed protein lines were found on three chromosomes: 16, 18 and 20 as determined from the bootstrap method. Chromosomes are labeled on the left according to number and centromere positions are shown as open circles. Vertical boxes indicate 500,000-nucleotide intervals. SNPs were identified via Method 2. The number of SNPs found in each interval is indicated above the interval. SNPs were clustered from the seed-protein data that contained 14 libraries for each NIL.

## Supplemental Material

* Material located in Appendix pg.118

Supplemental Table S1

SNPs identified by Method 1 on the single-library comparison.

Supplemental Table S2

SNPs identified by Method 2 on the single-library comparison.

Supplemental Table S3

SNPs identified by Method 1 on the four-library comparison.

Supplemental Table S4

SNPs identified by Method 2 on the four-library comparison.

Supplemental Table S5

SNPs identified by Method 2 on the seed protein NIL pair.

Supplemental File S1

Script used to determine intervals of significant SNP density based on a bootstrap method.

## Chapter 4. Identification of candidate genes underlying an iron-efficiency QTL in soybean

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## Abstract

Prevalent on calcareous soils in the United States and abroad, iron deficiency is among the most common and severe nutritional stresses in plants. In soybean commercial plantings, identification and use of iron-efficient genotypes has proven to be the best form of managing this soil-related plant stress. Previous studies conducted in soybean identified a significant iron-efficiency QTL explaining > 70 % of the phenotypic variation for the trait. In this research, we identified candidate genes underlying these QTL through molecular breeding, mapping and transcriptome sequencing. Introgression mapping was performed using two related near-isogenic lines in which a region located on soybean chromosome 3 required for iron-efficiency was identified. The region corresponds to the previously reported iron-efficiency QTL. The location was further confirmed through QTL mapping conducted in this study. Transcriptome sequencing and qRT-PCR identified, two genes encoding transcription factors within the region that were significantly induced in soybean roots under iron stress. The two induced transcription factors were identified as homologs of the subgroup Ib bHLH genes in that are known to regulate the strategy I response in *A. thaliana*. Re-sequencing of these differentially expressed genes unveiled a significant deletion within a predicted dimerization domain. We hypothesize this deletion disrupts the FIT / bHLH heterodimer that has been shown to induce known iron acquisition genes.

## Introduction

Iron deficiency chlorosis (IDC) is a worldwide concern. In soybean a 20% yield reduction has been reported for each one-point increase in iron chlorosis score (Froehlich and Fehr, 1981). Hansen et al. (2003) estimated an annual loss of 120 million dollars due to IDC in the United States alone. Soybean bushels are selling approximately seven dollars higher today than in 2004, increasing the estimated current revenue losses to over 260 million dollars.

Iron is one of seven essential micronutrients required for plant growth (Crosa, 1989). If concentrations of micronutrients within the plant are too high, they become toxic and will stunt growth in the same fashion as an insufficiency (Havlin et al., 1999). Iron deficiency is one of the most common micronutrient deficiencies in the world due to alkaline soil conditions (pH > 8) that maintain ferric ($Fe^{3+}$) iron in an insoluble state unavailable to some plant genotypes. Conversely, most plants are able to uptake and utilize soluble ferrous ($Fe^{2+}$) iron, prevalent in soils with pH ranging from 6.5 to 7.5 (Havlin et al., 1999). Iron deficiency in plants is commonly an issue of iron availability and not one of iron supply, as iron is the fourth most abundant element on the earth's surface.

Iron deficiency chlorosis (IDC) is caused by a decrease in photosynthetic pigments (Chlorophylls a/b, Carotene, Xanthophylls, etc.), in addition to a reduced electron

transport potential and a significant reduction in the thylakoid system (Spiller and Terry, 1980; Terry, 1980; Taylor et al., 1982). Symptoms of IDC vary from interveinal yellowing to complete necrosis (Cianzio, 1979; Havlin et al., 1999), which most genotypes overcome at the end of the growing season, however, severity of chlorosis is tightly correlated with end-of-season yield losses (Inskeep and Bloom, 1987).

The best way to manage IDC is through the use of Fe efficient varieties in commercial plantings. This is the reason why so much research has been devoted to identifying genetic markers associated with iron-efficiency for use in breeding programs. Work by Lin et al. (1997), showed that there are two genetic models to explain IDC resistance at the molecular level, which had been previously identified by classical genetic studies (Cianzio et al., 1980; Cianzio and Fehr, 1982). One model involves a single major gene with modifiers (Cianzio et al., 1980) identified in the Anoka x A7 population, the associated QTL was located on chromosome 3 explaining >70% of the phenotypic variation (Lin et al., 1997). The second model involved multiple genes (Cianzio and Fehr, 1982) identified in the PrideB216 x A15 population which represented a classic quantitative mode of inheritance. Lin et al., (1997) was unable to identify QTL in this population.

All plants except the Poaceae family have adapted what is known as the Strategy I response (Marschner et al., 1986) in order to reduce and acquire $Fe^{+2}$ from soils. In

Strategy I, plants pump protons across the plasma membrane via an $H^+$-ATPase to acidify the surrounding soil (Fox and Guerinot, 1998). The resultant acidification helps solubilize unavailable ferric iron. A ferric-chelate reductase (FRO2) reduces chelated $Fe^{3+}$ into available $Fe^{2+}$ (Walker and Connolly, 2008). The reduced iron ($Fe^{+2}$) is transported across the plasma membrane via an iron-regulated transporter (IRT1) (Korshunova et al., 1999). Recently, work in *Arabidopsis thaliana* and *Lycopersicon esculentum* has made great strides at elucidating plant responses to iron limiting conditions. The response is initiated by an unknown factor that results from the recognition of low cellular iron, which then activates transcription factors AtFIT, AtbHLH038, and AtbHLH039 (Bauer et al., 2007; Wang et al., 2007). Yuan et al. (2008) showed that in *A. thaliana* AtFIT/AtbHLH038 or AtFIT/AtbHLH039 was capable of initiating GUS expression when regulated by AtFRO2 and AtIRT1 promoters. Their results suggested that AtFIT binds as a heterodimer to either AtbHLH038 or AtbHLH039 to initiate expression of AtFRO2 and AtIRT1 under iron limiting conditions (Yuan et al., 2008).

Soybeans have a production disadvantage when they are unable to evoke an effective iron deficiency stress response. Near-isogenic lines (NILs) differing in their response to iron were developed by the USDA-ARS in the early 1970's (Bernard, 1975) and have become some of the standard lines for IDC research in soybean. From this work, two lines identified as PI 547430 and PI 547698 resulted from the

cross between Clark (PI 548533)(6) x T203 (PI 54619) and Harosoy (PI 548573)(6) x T203 (PI 54619) respectively.

Introgression mapping is a viable method for delineating the genetic differences between NILs (Nichols et al., 2006; King et al., 2007). Nichols et al. (2006) showed that fine mapping of NILs could identify introgressed regions in chromosomes. They further showed that additional rounds of backcrossing could narrow the introgression and help identify candidate genes. More recently, SNPs generated from next generation sequencing of NILs have been used effectively to map introgressions (Severin, Peiffer et al., 2010). Severin and Peiffer et al. (2010) identified multiple genomic regions from T203 that were back-crossed (introgressed) into PI 547430 (Clark background). An introgression on chromosome 3 was significantly larger than the other small introgressions scattered throughout the genome. It is also noteworthy that the Gm03 introgression identified within the NILs using SNPs from next generation sequencing is positionally coincident with the position of the major QTL identified in the Anoka x A7 population (Lin et al., 1997; Severin, Peiffer et al., 2010). Mapping the T203 introgression in the other T203 derived NIL, PI 547698 (Harosoy background), will confirm the importance of this genomic location for iron-efficiency.

A microarray study in the Clark / PI 547430 NILs revealed that the number of induced genes in Clark under iron limiting conditions was more than four times that

of the iron-inefficient PI 547430 (O'Rourke et al., 2009). Furthermore, the induced genes cluster in the genome, however the clusters did not correlate with any of the 11 previously identified QTL (Lin et al., 1997; O'Rourke et al., 2009). For this reason it was hypothesized a gene(s) within the known iron-efficiency QTL acts transiently to initiate the iron stress response of genes residing outside of the known QTL region: presumably a transcription factor.

In this paper, we identify a region on chromosome 3 that is required for iron-efficiency and is shared between multiple populations. Candidate genes within the region as well as gene expression differences between near-isogenic lines were identified. Furthermore we characterize potentially significant alleles between iron-efficient and iron-inefficient lines. We also discuss how these alleles may alter gene function and induce an iron-inefficient response in an otherwise efficient background

## Results

*Identification of the T203 introgressions in two NILs*

USDA-ARS scientists generated NILs by crossing the iron-efficient recurrent parents, Clark (PI 548533) and Harosoy (PI 548573) with an inefficient donor parent, T203 (PI 54619). The resulting F2 progeny were screened for iron-efficiency then backcrossed to the recurrent parent for five generations to create the iron-inefficient NIL. The genetic material from T203 introgressed into each efficient background

therefore presumably contains the gene(s) required to induce an iron-inefficient response in an otherwise efficient background (Bernard, 1975).

Identification of the introgressed DNA within the NIL genome was accomplished through a genome-wide survey using greater than 860 published simple sequence repeat markers (SSRs), available at Soybase.org (composite map 2003, Soybase.org). At least one marker representing the allele from the donor parent (T203) was detected on 12 of the 20 chromosomes for each background, Clark and Harosoy. Only on chromosome 3 (Gm03) was an introgressed region common for the two NILs (Table 1). PI 547430 and T203 shared alleles for markers Satt387 -> Sat_125 and PI 547698 and T203 shared alleles for markers Sat_275 -> Satt339 (Figure 1). In each NIL the region contained ~37% of all the introgressed markers.

A comparison of the overlapping region between the two pairs of NILs allowed for the region of interest to be narrowed to the 4.2 Mbp overlap (Satt387 -> Satt339) (Figure 1). Since, there were no other overlapping regions on any of the other chromosomes, it is likely that the gene(s) controlling iron-efficiency within the Clark/Harosoy NILs resides within this region. The region of introgression overlap on Gm03 correlates with the location of a known iron-efficiency QTL in an A7 x Anoka population (Lin et al., 1997; Lin et al., 2000). The iron-inefficient parent of this population, Anoka, is the result of a three-way cross between (Lincoln$^2$ x Richland) x Korean. It is important to indicate that Clark, one of the parents of the NIL, also

originated from the same single cross of (Lincoln$^2$ x Richland), later used as a parent in the tree-way cross from which Anoka was developed. Although Anoka was not generated in the same fashion as the two NILs, markers screened against Lincoln, Richland, Korean, and Anoka identified a region corresponding to the NIL introgression in which Anoka and Korean shared marker alleles (data not shown), suggesting transfer of genetic material within this region from the inefficient parent, Korean, to Anoka.

*High density mapping of the Anoka x A7 QTL*

Integrating the genetic map developed by Lin et al. (1997) with previously mapped SSRs and newly available BARCSOYSSRs (Song et al., 2010) resulted in a higher density genetic map. The 1993 and 1994 combined visual phenotypic data collected by Lin et al. (1997) was reanalyzed using the integrated map. The QTL on Gm03 was reconfirmed with a LOD score of 15.29, which is significantly higher than the permutated genomewise LOD cutoff value of 3.8 (Figure 2). The QTL region identified in 1997 spanned Gm03 from Sat_33 -> BLT_15. By placing additional markers on the map the predicted QTL region on Gm03 was significantly narrowed using the integrated map (Sat_33 -> S03_1129) (Figure 2).

*Reducing the donor parent introgression in PI 547430*

Following the identification of the T203 introgressed region in the iron-inefficient NIL PI 547430, further backcrossing to the recurrent parent (Clark) resulted in a BC6

population of PI 547430 during the summer of 2009 (Ames, IA). Two hundred cross pollinations were performed and 156 resulted in seed set. Seed from the crosses were planted in the greenhouse during the winter 2009/2010. Four SSR markers within the introgressed region were used for screening, to distinguish between plants that resulted from crosses or self-pollinated seeds. From these checks, 98 F1 plant/F2 seed families were confirmed as true hybrids. In summer 2010, 40 seed of each confirmed plant/family were planted at Bruner farm (Ames, IA).

Leaf tissue was harvested early in the growing season, at plant stage V2, in order to genotype the nearly 6000 plants in the field. An initial round of genotyping was performed with four markers to identify plants with crossovers within the introgressed region (Sub-NILs). From this initial screen, 480 plants were identified with a recombination within the region and chosen for additional marker analysis to identify potentially narrowed introgression regions. Twenty-nine plants were identified as fitting into 10 different sub-NIL classes, segmenting the introgressed region (Figure 3).

*Phenotypic analysis of lines with narrowed introgressions*

Phenotyping of the lines representing various recombinant classes was performed during winter 2010/2011. Plants were scored for iron chlorosis symptoms using the standard visual 1-5 scale and a Minolta SPAD-502 chlorophyll meter. Two replications, with eight plants each, were grown hydroponically in iron limiting

conditions in the greenhouse. The recombinant classes segregated into two groups, those with introgressions originating from the left and those originating from the right side of the original PI 547430 introgression (Figure 3). Visual and SPAD score averages for each of the two groups and controls (Clark and PI 547430) were compared. Interestingly, the visual score and SPAD averages for all categories containing the donor parent allele for Satt387 were not significantly different from the averages for PI 547430 (P-value: 0.7366 / 0.8202) allele. Visual and SPAD averages for all classes containing the Clark allele for Satt387 were not significantly different from the averages of Clark (P-value: 0.0864 / 0.3051). Of the classes containing the donor parent allele for Satt387 class 1 contains the least amount of T203 derived DNA. Recombinant class 1 was not phenotypically different from the other introgressions containing the T203 allele for Satt387 (p-value = 0.097). Thus, we could narrow the donor parent introgression in PI 547430 from ~ 6 million down to just over 1 million base pairs.

*Fine mapping recombinant class 1*

Recombinant class 1, consisting of the $F_{2:3}$ family 4-25, contained the least amount of T203 alleles conferring iron-inefficiency. Eight plants from the 4-25 family were genotyped with 17 additional SSR markers to identify more precise recombination intervals. Five shared a recombination interval of S03-1141 -> S03-1155 (Figure 4). Three shared an even narrower recombination interval between S03-1110 and S03-1112 (Figure 4). The average phenotypic score for the two subgroups of plants

within class 1 were not significantly different from each other (p-value = 0.2552). The introgression was therefore further narrowed to the ~250kb region identified by the three 4-25 plants with the recombination interval of S03:1110 -> S03:1112. The narrowing of this introgression significantly reduced the number of candidate genes from hundreds of genes down to eighteen genes potentially controlling the iron stress response in the NILs.

*Next-generation sequencing, RNA-Seq, analysis of NILs*

RNAseq was performed in replicate on RNA isolated from Clark leaves and roots 24 hours post iron stress. Eight libraries were constructed and sequenced producing 165,968,390 reads. The reads were then mapped to the soybean gene calls using Bowtie / Tophat (Trapnell et al., 2009). Differential gene expression between sufficient and iron insufficient conditions was determined using an FDR threshold of 0.05 in Cuffdiff (Roberts et al., 2011). The eighteen genes within the narrowed Gm03 introgression were examined in the RNA-seq data to determine their expression differences between iron sufficient and iron insufficient conditions (Table 2). In both replicates only two of the 18 genes were significantly differentially expressed in the roots, Glyma03g28610 and Glyma03g28630. The two genes share 87.8% peptide similarity and are homologous to the *Arabidopsis thaliana* AtbHLH038 with 66.7 and 63.9% peptide similarity respectively. The expression of the genes was significantly increased ($p<0.05$) under iron stress conditions compared to that of the iron-sufficient condition. Expression of the two genes was also restricted to the

roots and expression was not detected in leaves of plants grown in stressed or non-stressed conditions. The leaves showed differential expression of six genes within the identified introgression (Glyma03g28450, Glyma03g28490, Glyma03g28590, Glyma03g28480, Glyma03g28510 and Glyma03g28570) in one of the two biological replicates but not in the other. When the two replicates were combined, four of the genes were confirmed as differentially expressed (Glyma03g28450, Glyma03g28490, Glyma03g28480 and Glyma03g28570) (Table 2). Within the narrowed introgression four genes were identified as transcription factors (Glyma03g28610, Glyma03g28630, Glyma03g28500, and Glyma03g28440) (Wang et al., 2010).

*Gene expression comparison between Clark and PI 547430*

Previous studies in *A. thaliana* have shown that AtbHLH038 is induced under iron limiting conditions (Yuan et al., 2008). In our study, homologs of this gene (Glyma03g28610/28630) were also induced. qRT-PCR was used to confirm the expression pattern of these genes identified through RNA-seq analysis. qRT-PCR confirmed the results of the RNA-seq. Both genes showed a greater than two-fold induction under Fe-insufficient conditions (Table 3). While RNA-seq data was not generated for PI 547430, qRT-PCR expression analysis was performed on the same genes in the inefficient NIL. A greater than two-fold induction of Glyma03g28610 and Glyma03g28630 was observed in PI 547430 under iron stress conditions (Table

3). Clark and PI 547430 did not show a significant difference in the expression levels of these genes under iron stress conditions.

In *A. thaliana,* it has been shown that AtFIT binds AtbHLH038 as a heterodimer to activate AtFRO2 and AtIRT1 (Yuan et al., 2008). We used the available RNA from Clark and PI 547430 to investigate the expression patterns of these downstream genes. We identified the soybean homologs of the *A. thaliana* genes using peptide similarity and found that Glyma07g07380 (GmFRO2) is homologous to AtFRO2 with 72.5% peptide similarity. Glyma07g34930 (GmIRT1) is homologous to AtIRT1 with 77.7% peptide similarity, and Glyma12g30240 (GmFIT) is homologous to FIT with 62.1% peptide similarity. Using primers designed from these genes qRT-PCR showed that Clark induced Glyma03g28610, Glyma03g28630, GmFIT, and the two downstream genes GmFRO2 and GmIRT1 under iron stress (Table 3). PI 547430 had significant induction of GmIRT1 yet failed to induce GmFIT or GmFRO2 under iron stress even with high Glyma03g28610 and Glyma03g28630 expression (Table 3). The expression levels of GmFIT, GmFRO2 and GmIRT1 in Fe stressed Clark were significantly greater (3, 5 and 2.5-fold respectively) than that of PI 547430 under Fe stress.

*gDNA sequencing of differentially expressed transcription factors*

Glyma03g28610 and Glyma03g26830 were the only two transcription factors found to be differentially expressed within this region. These two genes were sequenced

in Clark, Anoka and T203 to determine if allelic differences could be identified through sequencing analysis. Allelic differences were identified between the iron-efficient Clark and the iron-inefficient T203 and Anoka. A twelve base pair deletion was identified in Glyma03g28610 (Gm03:36552946..36552957) an in-frame four amino acid deletion (PELQ). Primers were designed to identify the presence or absence of the deletion and used to screen Harosoy, Lincoln, Richland, A7, Korean, PI 547698 and PI 547430. The twelve base pair deletion was identified only in the iron-inefficient cultivars (Anoka, Korean, T203, PI 547698 and PI 547430). It was not detected in the iron-efficient genotypes (Clark, Harosoy, Lincoln, Richland and A7) (Figure 5).

## Discussion

*Whittling donor parent introgressions*

In this report we have narrowed a large list of candidate genes derived from a classical genetic QTL study down to a manageable list of eighteen genes. Two of the candidate genes are homologous to genes in *A. thaliana* known to play a major role in iron acquisition. We used a variety of mapping techniques and additional backcrossing of NILs to narrow the region of interest on chromosome 3 down to a 250 kb region. The research reported herein shows that using the whole genome sequence of soybean, classical genetics and genomic technologies, we were able to

identify the genes underlying a QTL previously identified by Lin et al. (1997), nearly 15 years ago.

We investigated two sets of near isogenic lines sharing a common donor parent and identified regions of the genome introgressed from the donor parent into each of the recurrent parents. The results reported here using SSR markers to delineate the T203 introgressions in the PI 547430 NIL confirmed the introgressions using SNPs reported by Severin et al. (2010). However, by also mapping T203's introgression into Harosoy we were able to significantly decrease the proportion of the introgressed region likely to contain the gene(s) involved in the iron stress response. The use of the common donor parent allowed for the overlay of the two maps. Fortunately, the introgressed regions in each NIL shared only a small overlap, which allowed for further dissection of this region down to 4.2 Mb (Satt387 -> Satt339).

Early IDC QTL studies used the mapping population Anoka x A7 to identify an iron-efficiency QTL on chromosome 3 that was responsible for > 70% of the phenotypic variation (Lin et al., 1997). Since the late 1990's the marker density on the soybean genetic map has been greatly improved. It was for this reason that the population used in this early QTL study was rescreened with the approximately 900 newly available SSR markers (Soybase.org). Using the original phenotypic data the major QTL on chromosome 3 was reconfirmed in our study and further refined. Lin et al. (1997) hypothesized that the QTL on chromosome 3 was the result of a single major

gene within the QTL responsible for their phenotypic observations. Our findings with the NIL mapping in both the Harosoy and Clark backgrounds support their hypothesis in addition to reconfirm the single major QTL in the Anoka x A7 mapping.

To identify the gene(s) responsible for Fe inefficiency within the QTL, it was necessary to narrow the list of candidate genes. Previous studies have shown that additional backcrosses in NIL populations allows for narrowing the introgression boundaries (Nichols et al., 2006). The successes seen in this approach led us to develop the sixth backcross of PI 547430 to the recurrent parent Clark during summer 2009. We identified two distinct phenotypic classes; those containing the PI 547430 allele for Satt387 that displayed IDC symptoms similar to that of PI 547430 and those with the Clark allele for Satt387 that were healthy. We were further able to delineate the region with the use of 17 previously unmapped BARCSOYSSRs (Song et al., 2010). Recombinant class 1 harbored plants with two distinct recombination intervals not significantly different from each other with respect to IDC response. From this we were able to narrow the genetic interval further to a manageable 250 kb region significantly reducing the number of candidate genes from > 800 down to a mere 18. The 250kb region co-locates with the Anoka x A7 QTL to the centromeric side of the introgression overlap indicating that the Anoka x A7 and the two NILs may share common alleles for a gene(s) facilitating the IDC response.

*Candidate gene expression*

O'Rourke et al. (2009) performed microarray studies using the Clark/PI 547430 NIL and hypothesized that regulatory elements within the known iron QTL were responsible for gene expression changes of known iron genes located outside the QTL region. Our study supports that hypothesis. Four of the eighteen genes identified within the narrowed introgression were annotated as transcription factors Glyma03g28440, Glyma03g28500, Glyma03g28610, and Glyma03g28630 (Wang et al., 2010). Two of these genes Glyma03g28610 and Glyma03g26830 are interesting as they are homologs of *A. thaliana* AtbHLH038. AtbHLH038 is a member of a subgroup of bHLH genes known as lb bHLH genes and have been shown to be induced upon iron stress (Yuan et al., 2008). It has been proposed that AtbHLH038 can bind as a heterodimer to AtFIT to enhance the expression of the downstream iron acquisition genes, AtFRO2 and AtIRT1 (Yuan et al., 2008). Polymorphisms in these two transcription factors likely underlie the QTL in question. Of the 18 genes identified within the narrowed region of interest, Glyma03g28610 and Glyma03g28630 were induced upon iron stress and were the only two genes found to be significantly differentially expressed in the roots and the only two transcription factors differentially expressed in either the roots or the leaves. qRT-PCR confirmed the expression trends of Glyma03g28610 and Glyma03g28630 in addition to the soybean homologs of AtFIT, AtFRO2 and AtIRT1. LeFER, the AtFIT homolog in *L. esculentum* is not induced upon iron stress (Ling et al., 2002) whereas AtFIT is induced upon iron stress along with AtbHLH038/039, which initiate expression of

AtFRO2 and AtIRT (Yuan et al., 2008). We have shown that FIT expression in soybean corresponds with the induction observed in *A. thaliana* and not *L. esculentum* as soybean induces GmFIT expression upon iron stress.

Transcriptome analysis was not conducted on PI 54730, however by using qRT-PCR we were able to investigate the inefficient NIL's response to iron stress at the gene expression level. PI 547430 showed no significant change in GmFIT or GmFRO2 expression between iron sufficient and iron insufficient conditions, however GmIRT1 was still induced greater than two fold though significantly less than that of Clark. AtIRT1 is typically thought to have coordinate expression with AtFRO2 (Connolly et al., 2003), however our results showed a significant difference in the coordinated induction of GmFRO2 and GmIRT in PI 547430 under iron limiting conditions. The lack of GmFRO2 induction is quite significant since the reduction of $Fe^{3+}$ to $Fe^{2+}$ at the rhizosphere has been shown to be a rate-limiting step for iron uptake (Grusak et al., 1990; Connolly et al., 2003).

Although not analyzed in depth in this study, six genes were differentially expressed in Clark leaves. Of these genes Glyma03g28570 stands out. It is annotated in the KEGG database (Kanehisa and Goto, 2000) as a member of the two-component response regulator ARR-A family. To et al., (2004) identified the Type-A *Arabidopsis* response regulators as having a negative role in the regulation of cytokinins. Recently, Seguela et al. (2008) identified for the first time that cytokinins were

involved in regulation of AtFIT, AtFRO2 and AtIRT1. Potentially Glyma03g28570 is another one of the underlying genes behind the significant effects of this iron-efficiency QTL.

Interestingly, in the Anoka x A7 mapping population the iron-inefficient parent Anoka was derived from a cross between (Lincoln$^2$ x Richland) x Korean. Clark, the iron-efficient recurrent parent used in the earlier NIL mapping, was also derived from a Lincoln$^2$ x Richland cross. From this we would hypothesize that Korean donated the iron-inefficient allele(s) in Anoka. We mapped two distinct blocks of SSRs containing alleles derived from Korean on chromosome 3 which corresponded with the overlapped introgression identified by both of the NILs (data not shown). The identification of the same genomic region in the NIL and QTL mapping studies along with the twelve base pair deletion in Anoka and Korean strongly indicates Glyma03g28610 or another gene(s) within this region as having a major effect on the iron-efficiency of soybean. Furthermore, if the dimerization capabilities of this AtbHLH038 homolog are in fact hindered by the twelve base pair deletion it could explain why plants harboring this mutation aren't as effective at surviving in low iron environments.

*Mutant identification*

The lack of a significant gene expression change for Glyma03g28610 and Glyma03g28630 between Clark and PI 547430 under iron stress conditions indicates

that if these genes are the underlying cause of the QTL then the difference between the lines may be due to gene function. We identified two alleles of Glyma03g28610 that had 100% correlation with iron-efficiency in this study. The iron-inefficient cultivars Anoka, T203, PI 547430, PI 547698, and PI 548360 all shared a twelve base pair deletion within the second exon of this gene. The deletion is an in-frame 4 amino acid deletion that doesn't appear to hinder accumulation of the gene's transcript. According to NCBI's Conserved Domain Database the deletion spans one of the 14 predicted dimerization sites and shifts two others (Figure 6). This deletion could potentially alter Glyma03g28610's ability to bind as a heterodimer with GmFIT, or alter the confirmation of the protein so that it is no longer able to bind the e-box within the promoter regions of GmFRO2 and GmIRT1. This could explain why GmFRO2 is not induced in PI 547430 upon iron stress. It has been hypothesized that there is an additional regulatory step between AtFIT and AtIRT1 (Colangelo and Guerinot, 2004). This unknown factor could be the cause of the GmIRT1 expression in PI 547430. In addition, it has been shown that AtFIT regulates AtFRO2 at the level of transcription and IRT1 at the level of protein accumulation (Colangelo and Guerinot, 2004). It was beyond the scope of this study to look at protein accumulation. Thus, even though we observed an induction of GmIRT1 mRNA we cannot claim that there is an increase of GmIRT1 protein in the soybean roots. PI 547430 lacked the ability to induce GmFIT under iron limiting conditions, which indicates that there may be further unknown factors within the iron response pathway capable of inducing GmIRT1.

## Conclusion

In this report, we show that mapping sites of introgressions in multiple NILs sharing a common donor parent is a viable method for identification of genomic regions controlling phenotype. Furthermore, through the creation of Sub-NILs and gene expression analysis that we were able to identify two candidate genes within the NIL introgression on chromosome 3 that co-localizes with a known Fe-efficient QTL in the Anoka x A7 population. Finally, we identified a 12 bp deletion in one of the candidate genes that is shared in the inefficient lines in both NILs and the inefficient parent, Anoka, in the Anoka x A7 population.

## Materials and Methods

*Introgression mapping*

Lines used in this study were derived from backcrossing the two efficient recurrent parents Clark and Harosoy crossed with the common donor parent T203 (Bernard, 1975). Mapping of the T203 (donor) introgression into both PI 547430 (Clark background) and PI 547698 (Harosoy background) utilized 869 and 864 SSR markers respectively. Markers were used to amplify DNA from the donor, and recurrent parents, and from the isolines. PCR product was visualized on a 6% polyacrylamide gel. Screened markers were categorized into three classes: not informative, informative between the parents, and introgressed DNA. The

introgressed class was defined by the isoline's banding pattern matching that of the donor parent. All markers had a known location on the whole genome sequence (Glyma1.01) (www.SoyBase.org) and thus identified regions of introgression into the near isogenic line.

*QTL mapping in the Anoka x A7 population*

Plant material for QTL mapping originated from 92 $F_{2:4}$ lines from the Anoka x A7 population, which was previously used to map iron deficiency chlorosis QTL (Lin et al., 1997). The genetic linkage map was created by screening the population with 916 known SSR markers (SoyBase.org) and an additional 303 untested BARCSOYSSR markers (Song et al., 2010). The marker scores for each line were then imported into Mapmaker 3.0 (Lander et al., 1987). A logarithm of the odds (LOD) threshold of 4.0 was used in a 3-point linkage analysis to construct the map.

Phenotypic data obtained by Lin et al. (1997) was used in the research reported here. Linkage maps were imported into MAPQTL6 (Van Ooijen, 2009), and QTL were mapped using interval mapping and multiple-QTL mapping (Lander and Botstein, 1989; Jansen, 1993, 1994). A significant experimentwise LOD threshold of 3.8 was determined by 1,000 permutations of the data.

*Backcross advancement of PI 547430*

To further increase the chances of narrowing the introgressed region within the NIL (Clark background) an additional backcross generation was performed in these lines, during the 2009 summer. Seventy-five Clark and 75 PI 547430 seed were planted on May 19th, 2009 at the Bruner farm (Ames, IA). Two hundred crosses were performed which produced 156 seeds that were planted during the 2009 / 2010 winter season in the greenhouse at Ames, IA. The BC6 plants were screened with four SSR markers to confirm heterozygosity within the introgressed region. Forty seed from each confirmed cross were then planted at the Bruner farm (Ames, IA) on May 27th, 2010. Approximately 2600+ plants were screened with Satt387, Satt521, Sat_091 and Sat_295 to identify recombinations within the introgressed region. Of these, 480 plants with recombination within the introgression region were selected for genotyping with four additional SSR markers (Sat_236, Satt549, Satt339, Sat_304) to better delineate the recombination intervals.

*Hydroponic phenotyping*

In the winter of 2010 seed of each line was sowed on germination paper for 7 days before seedlings transfer to a custom plant holder suspended over a 10L foil wrapped plastic bucket. Two replicates containing eight plants in each recombinant class were grown under iron stress conditions (50 μM $Fe(NO_3)_3 \bullet 9H_2O$), following the procedure outlined by O'Rourke et al. (2007). Each 10L bucket contained: 2mM $MgSo_4 \bullet 7H_2O$, 2mM $Mg(NO_3) \bullet 6H_2O$, 2.5mM $KNO_3$, 1mM $CaCl_2 \bullet 2H_2O$, 4mM

$Ca(NO_3)_2 \cdot 4H_2O$, 0.02mM $KH_2PO_4$, 542.5μM KOH, 217μM KOH, 20μM $MnCL_2 \cdot 2H_2O$, 50μM $ZnSO_4 \cdot 7H_2O$, 50μM $CuSO_4 \cdot 5H_2O$, 0.2μM $Na_2MoO_4 \cdot 2H_2O$, 1μM $CoSO_4 \cdot 7H_2O$, 1μM $NiSO_4 \cdot 6H_2O$ and 10μM $H_3BO_3$ in accordance with research by Chaney and Bell (Unpublished Advisory Letter, 1989) and O'Rourke et al. (2007). A 3% $CO_2$-air mixture was used to maintain a pH level of 7.8. Each day a stock solution containing 30M $K_2HPO_4$, 222M $KH_4NO_3$, and 0.179M $H_3BO_3$ was added into the nutrient solution system to replace nutrients utilized by the growing plants. The greenhouse photoperiod was held constant at 14-hours with a 10-hour dark period for the entirety of the experiment. Plants were phenotyped 15 days after transfer into hydroponics at the V3 stage. The 1-5 visual IDC score identification was performed as outlined by Cianzio et al. (1979). In addition to visual score, SPAD readings were also recorded with a Minolta SPAD-502 chlorophyll meter (Tokyo, Japan), immediately following visual score determination.

*RNA sampling of Clark and PI 547430 tissues following iron-shock (root and leaf)*

Plants of Clark and PI 547430 were grown using a similar greenhouse hydroponic system with sufficient amounts of iron for 14 days according to the methods described above. After this period plant roots were rinsed six times to remove iron and other nutrients traces and transferred to either Fe-sufficient (100 μM $Fe(NO_3)_3 \cdot 9H_2O$) or Fe-insufficient (50 μM $Fe(NO_3)_3 \cdot 9H_2O$) hydroponic conditions. After 24 hours of being transferred, foliar and root tissue was collected and flash-frozen for storage. RNA was later extracted and purified using RNeasy mini kit

(QIAGEN Inc., Valencia, CA). The isolated RNA was then treated with DNase to remove final traces of DNA and stored at -80C until sequenced.

*Illumina Next-generation sequencing of RNA*

Four libraries were sequenced using a Genome Analyzer II (Illumina). The libraries consisted of two Fe-sufficient and two Fe-insufficient biological replicates each containing three pooled replicates. Sequencing was performed using established methods at the National Center for Genome Resources (NCGR). Severin et al. (2010) have outlined the techniques of RNA-Seq sequencing. In brief, RNA with a poly-A tail was isolated and size selected for ~500 bp fragments. PCR amplified products of the size-selected library were checked for quality and loaded onto an Illumina flow cell for 36 cycles.

*Analysis of Next-generation sequencing Data*

The 36 bp reads were aligned to the soybean genome transcript map (Gmax_109, (Schmutz et al., 2010) using Bowtie/Tophat (Trapnell et al., 2009). Alignment was limited to a seed length of 28 bases with a mismatch limit of two. The alignments were further processed using Cufflinks/Cuffdiff v1.0.2 (Roberts et al., 2011). Transcript abundances were determined in Cufflinks using the fragments per kilobase of exon per million fragments mapped (FPKM), similar to the method described in Mortazavi et al., (2008). Normalization of samples was performed using upper quantile normalization in order to better achieve estimates of lowly expressed

genes (Bullard et al., 2010). Cuffdiff was used to identify gene expression differences between sufficient and insufficient iron conditions (Roberts et al., 2011). Significant differential gene expression was determined using a false discovery rate of 0.05 with a minimum of 30 alignments at a locus for a valid significance testing and a significant p-value cutoff of 0.05.

*Gene expression analysis through qRT-PCR*

Primers were designed from protein coding sequences (CDS, Phytozome.net) using Primer3 as a primer design tool (Rozen and Skaletsky, 2000). Primers were designed to amplify ~100 bp fragments ideally spanning the intron/exon border to differentiate RNA and DNA amplified product. RNA amplification was performed using SuperScript III Platinum SYBR Green One-Step qRT-PCR amplification kit (Invitrogen). Reactions were performed on a Stratagene Mx3000p Real-Time PCR machine (Agilent Technologies, Inc, Santa Clara, CA). Reactions were run for 44 cycles at a temperature of 60ºC. A standard curve was created using 2.5, 12.5, 25, 100 and 150ng RNA concentrations along with a no template control, and a no reverse transcriptase well for each primer pair.

ELF-1B was chosen as the reference gene for this study based on previous reports by Wang et al., (2009). For each plate one test primer and one reference gene primer were screened with two technical replicates for each of the three biological replicates. This design allowed for the comparison between the quantity values

(Rieu and Powers, 2009). qRT-PCR reactions were used for analysis only if the dissociation curve showed one peak and the no-RT and no-template reactions were greater than 5 cycles away from the other data points. The standard curve was accepted if the $r^2$ value was greater than 0.985.

The relative quantities were determined by normalizing the values for the test primers to that of the reference gene (ELF-1B). The technical and biological replicates were then averaged and log base 2 transformed.

*gDNA sequencing*

DNA was extracted from Clark (PI 548533), Harosoy (PI 548873), T203 (PI 54619), PI 547430, PI 547698, Anoka (PI 548508) and A7 (PI 596526) using a 96-well c-tab method outlined by Dietrich et al. (Dietrich et al., 2002). Primers were designed across the predicted gene calls starting ~500 bp upstream of the transcription start site and continuing ~500 bp past the transcription stop. Individual primers were designed to amplify ~750 bp fragments. The sequencing methods used are outlined in Severin, Peiffer et al. (2010). Cleanup of the PCR reaction utilized exonuclease 1 and shrimp alkaline phosphatase. Sequencing was performed using the BigDye V3.1 sequencing kit on a 50 cm 96-capillary Applied Biosystems 3730XL DNA analyzer (Applied Biosystems). The sequences from all eight genotypes were then aligned using Sequencher V4.9 (Gene Codes Corporation). The alignments were used to identify SNPs between the sequenced lines.

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## Author Contributions

Gregory A. Peiffer wrote the manuscript, conceived the hypothesis and experimental design through the introgression identification, narrowing and gene expression changes. Keith E. King and Nicholas C. Lauter performed Fe efficiency QTL analysis in the Anoka x A7 population. Andrew J. Severin contributed to the gene expression analysis. Shun Fu Lin generated the Anoka x A7 population and phenotypic scores. Silvia R. Cianzio and Randy C. Shoemaker provided guidance and editorial assistance for the manuscript.

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**Table 1.** Polymorphic SSR Markers Screened in the Two NILs

| | Total Markers | Polymorphic Markers[1] | Introgressed Markers[2] | Percent on Gm03 |
|---|---|---|---|---|
| Clark | 869 | 415 | 27 | 37.7 |
| Harosoy | 864 | 345 | 19 | 36.9 |

Comparison of polymorphic markers between the two recurrent parents and T203. In each NIL approximately 37% of the polymorphic markers were clustered on chromosome 3. [1]Isoline same banding as Clark, [2]Isoline same banding as T203

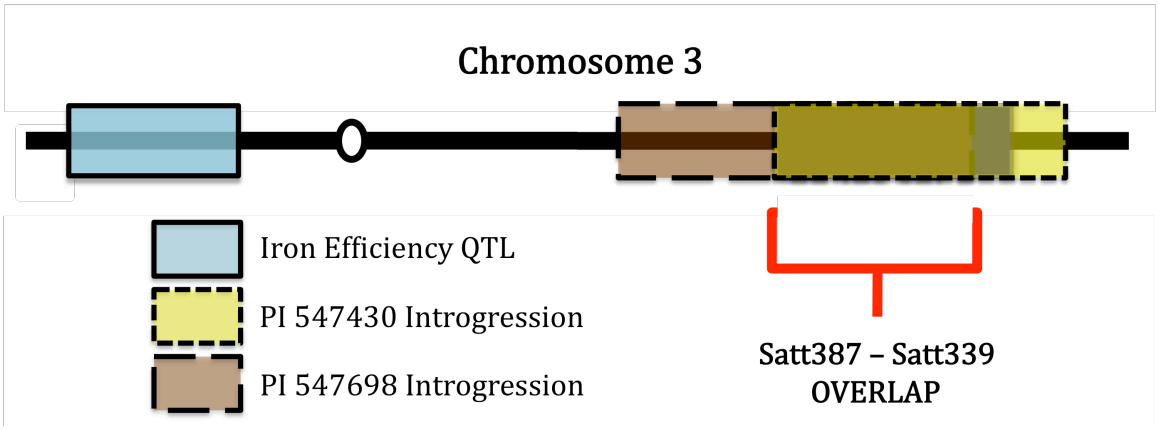



**Figure 1.** Overlay of the Two Near Isogenic Line introgressions and the iron efficency QTL on chromosome 3. Blue solid boxes are the previously identified iron-efficiency QTL, the brown wide dashed box is the PI 547698 introgression, and the yellow short dashed box is the introgression in PI 547430.

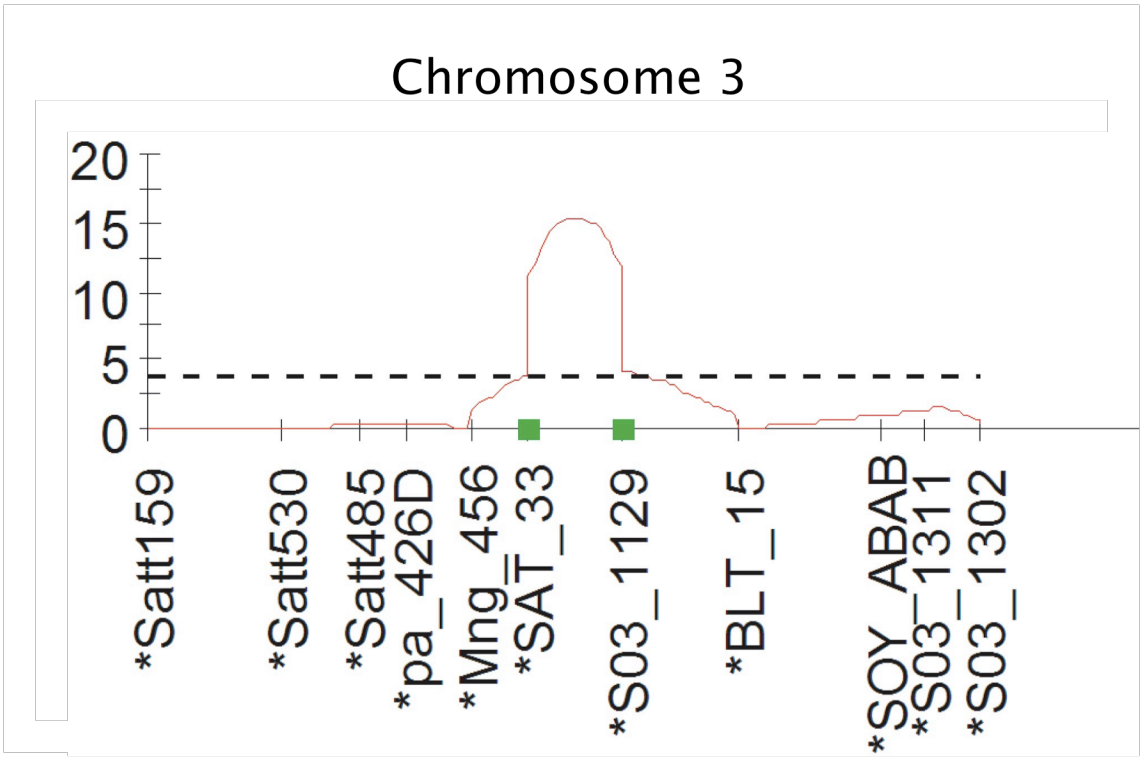
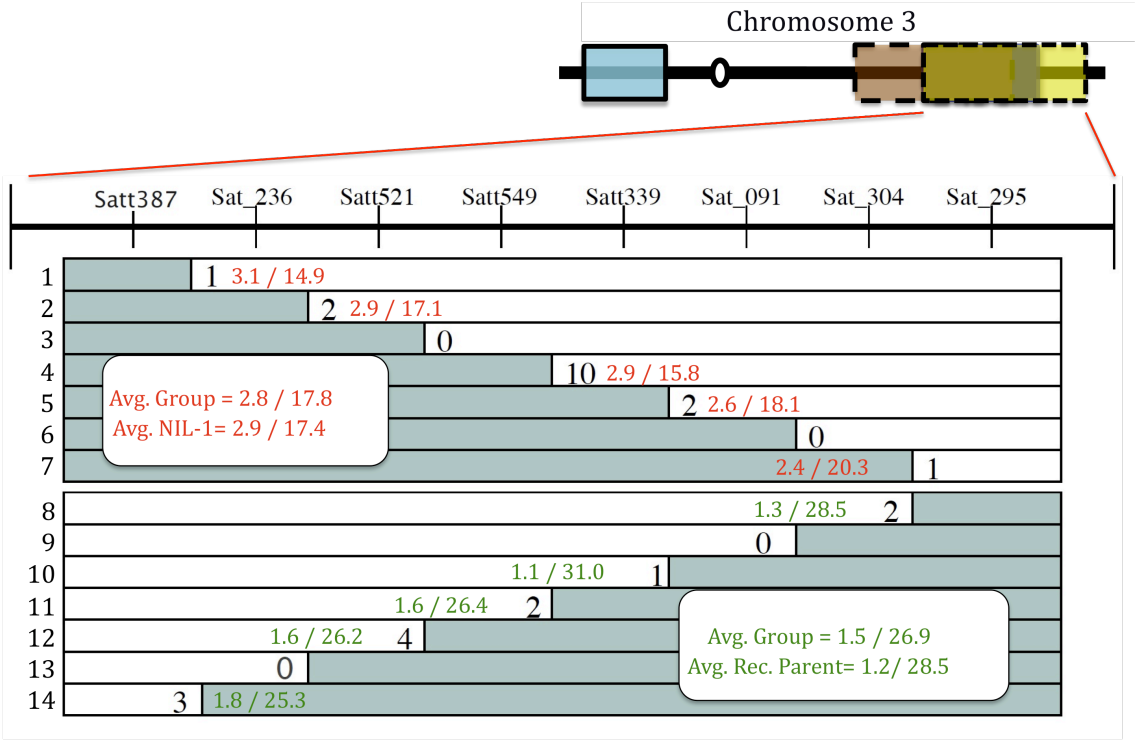



**Figure 2.** IDC visual scores mapped in the Anoka x A7 population for the combined 1993 and 1994 data. The only significant QTL was found on chromosome 3 with a LOD score of 15.29.

A




B

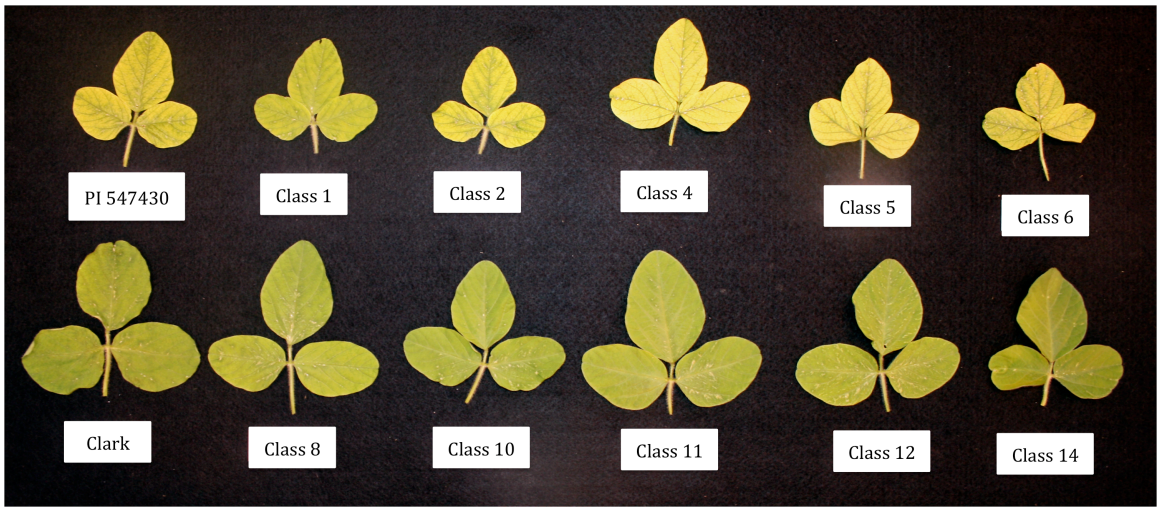



**Figure 3.** Sub-NIL phenotyping for in the PI 547430. A, Diagram of the Sub-NILs identified across the BC6 PI547430 introgression site. Phenotypes for each class are reported with the visual score / SPAD reading. Shadded region indicates donor parent alleles. B, Represenative images of the plants in each class. Controls for each group are PI 547430 and Clark respecitvely.

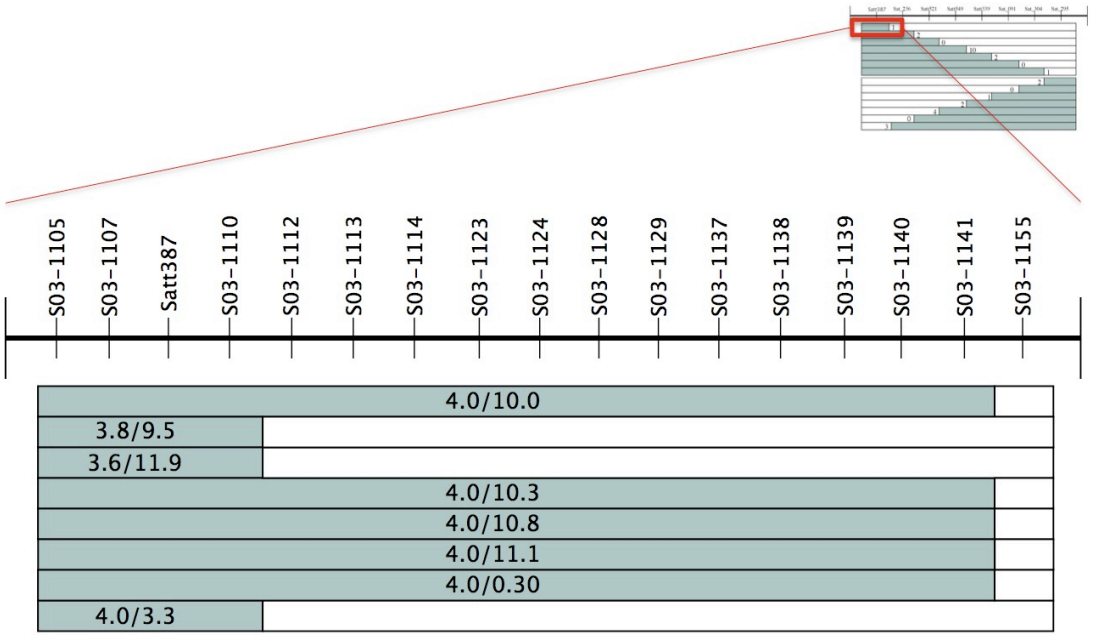



**Figure 4.** Fine mapping of recombinant class 1. Shaded regions indicate donor parent alleles, the non-shaded regions indicate Clark alleles. The phenotypic scores are recorded with the visual score / SPAD score.

**Table 2.** Annotation of Genes within Narrowed Introgression
PFAM Annotations of the candidate genes within the whittled introgression on chromosome 3. Differential expression is indicated for each of the data sets.

| Gene Name | Differential expression | PFAM ID | PFAM Description |
|---|---|---|---|
| Glyma03g28440 | | PF00651 | BTB/POZ domain |
| Glyma03g28450 | Leaf 1 & 2 | NA | Unknown Function |
| Glyma03g28460 | | NA | Unknown Function |
| Glyma03g28470 | | PF05834 | Lycopene cyclase protein |
| | Leaf 1 & 2 | | NADP oxidoreductase coenzyme |
| Glyma03g28480 | | PF03807 | F420-dependent |
| Glyma03g28490 | Leaf 1 & 2 | PF08241 | Methyltransferase domain |
| Glyma03g28500 | | PF07719 | Tetratricopeptide repeat |
| | Leaf 1 | | RNA polymerase Rpb5, N-terminal |
| Glyma03g28510 | | PF03871 | domain |
| Glyma03g28520 | | PF00462 | Glutaredoxin |
| | | | Cys/Met metabolism PLP- |
| Glyma03g28530 | | PF01053 | dependent enzyme |
| | | | Plant protein 1589 of unknown |
| Glyma03g28550 | | PF09713 | function (A_thal_3526) |
| | Leaf 1 & 2 | | Response regulator receiver |
| Glyma03g28570 | | PF00072 | domain |
| Glyma03g28580 | | PF03088 | Strictosidine synthase |
| Glyma03g28590 | Leaf 1 | PF03088 | Strictosidine synthase |
| | | | haloacid dehalogenase-like |
| Glyma03g28600 | | PF00702 | hydrolase |
| | **Root 1 & 2** | | **Helix-loop-helix DNA-binding** |
| **Glyma03g28610** | | **PF00010** | **domain** |
| | **Root 1 & 2** | | **Helix-loop-helix DNA-binding** |
| **Glyma03g28630** | | **PF00010** | **domain** |
| Glyma03g28640 | | NA | Unknown Function |

**Table 3.** RNA-seq and qRT-PCR Expression data
Gene expression analysis of the known strategy I response genes using RNA-seq and qRT-PCR. Expression is reported by fold change between sufficient and insufficient iron conditions.

| Gene Name | Annotation | Comparison | DE in RNA-seq Set 1 (Clark) | DE in RNA-seq Set 2 (Clark) | DE in qRT (Avg) |
|---|---|---|---|---|---|
| Glyma03g28610 | BHLH038 | CRSvCRD | 3.71* | 4.47* | 2.99* |
| Glyma03g28630 | BHLH038 | CRSvCRD | 6.24* | 4.11* | 2.26* |
| Glyma12g30240 | FIT | CRSvCRD | 1.38 | 3.61* | 5.93* |
| Glyma07g07380 | FRO2 | CRSvCRD | 1.61 | 3.54* | 3.97* |
| Glyma07g34930 | IRT | CRSvCRD | 2.22* | 3.21* | 3.26* |
| Glyma03g28610 | BHLH038 | ICRSvICRD | - | - | 3.28* |
| Glyma03g28630 | BHLH038 | ICRSvICRD | - | - | 3.09* |
| Glyma12g30240 | FIT | ICRSvICRD | - | - | 0.77 |
| Glyma07g07380 | FRO2 | ICRSvICRD | - | - | 0.70 |
| Glyma07g34930 | IRT | ICRSvICRD | - | - | 2.11* |

*Greater than 2-fold expression change
CRS = Clark Root Sufficient
CRD = Clark Root Deficient
ICRS = PI547430 Root Sufficient
ICRD = PI547430 Root Deficient

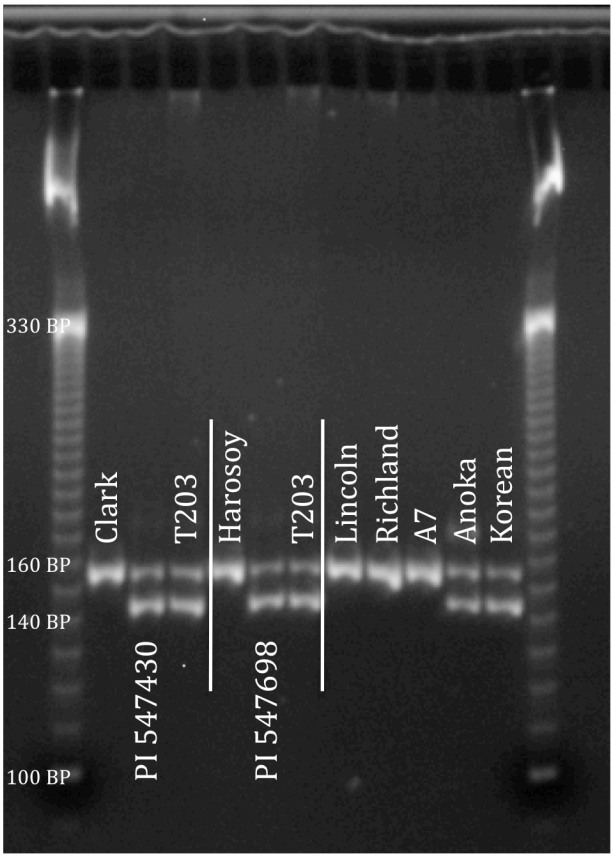



**Figure 5.** PCR amplification of Glyma03g28610 with primers flanking the 12bp deletion. Due to the high similarity between Glyma03g28610 and Glyma03g26830, the deletion is indicated by the double banding at 143 and 155bps. The deletion is only present in the inefficient lines.

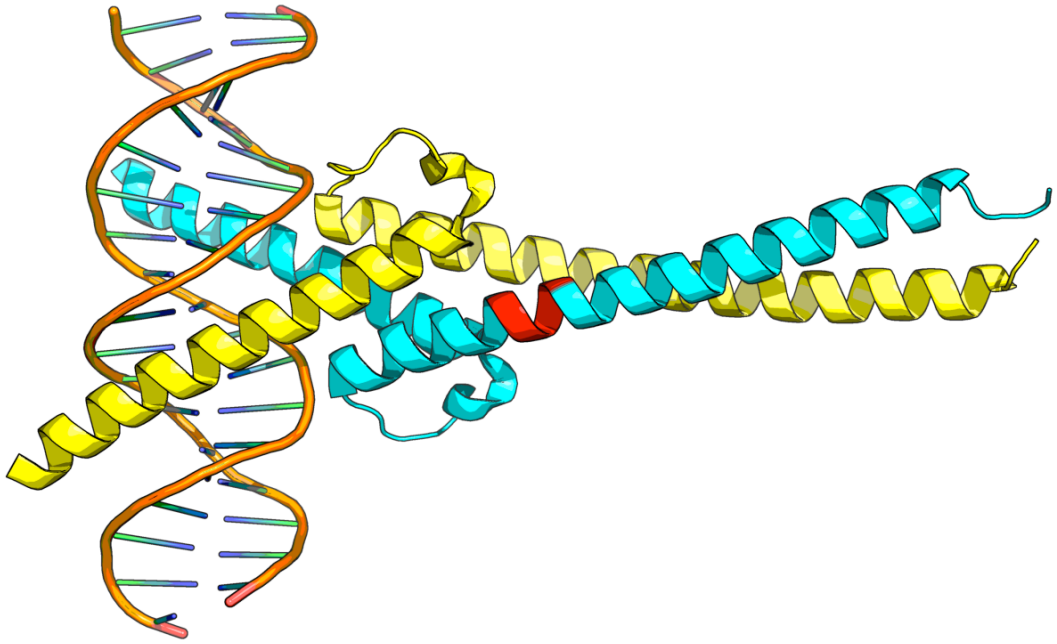


**Figure 6.** Cartoon of the FIT / bHLH038 heterodimer bound to DNA. The protein model depicts the interaction of the strategy I response transcription factor FIT (yellow) with it's heterodimer bHLH038, Glyma03g28610 (blue). The 12 bp deletion is indicated in red.

# Chapter 5. General Conclusions

## Conclusions

Iron deficiency chlorosis is a major soybean nutritional concern first recognized in the early 1940's (Weiss, 1943). Breeding for iron-efficiency revitalized in the 1980's -> 1990's (Cianzio, 1979; Diers et al., 1992; Lin et al., 1997). Researchers identified iron-efficient QTL in various populations uncovering multiple mechanisms of IDC resistance; (1) single major gene with modifiers and (2) a quantitative trait controlled by multiple genes (Cianzio, 1979; Lin et al., 1997; Lin et al., 1998). Since the turn of the century, specific iron response genes have been delineated in model organisms such as *A. thaliana* and *L. esculentum* (Vert et al., 2002; Connolly et al., 2003; Yuan et al., 2008). Using knowledge gained from these other organisms we can better identify underlying genes facilitating the multiple response mechanisms. The research presented in this dissertation was designed to delineate the underlying genetic differences between iron-efficient and iron-inefficient soybean lines.

Previous studies have utilized soybean NILs as a tool to identify genetic differences between iron-efficient and iron-inefficient varieties (O'Rourke et al., 2007; O'Rourke et al., 2007; O'Rourke et al., 2009). The best way to utilize NILs is to define the donor parent introgression sites in the recurrent parent. Chapter 3 of this dissertation identifies a novel method for that type of identification. Through the use of next-generation sequencing and SNPs identified between the parents and NIL derived from them, we were able to fine map introgression boundaries. The study

identified donor parent introgressions on six of the twenty soybean chromosomes. Utilizing the previous QTL studies as a scaffold we aligned the newly identified introgressions with the QTL. Of the six chromosomes with donor parent introgressions, only the introgression on the long arm of chromosome 3 co-localized with any QTL. The QTL on chromosome 3 was identified in the Anoka x A7 population thought to contain a single major gene controlling IDC response (Lin et al., 1997).

In chapter 4 we took the NIL mapping a step further with a second NIL created with the same donor parent used by Bernard (1975). The donor parent introgressions in this new NIL were coincident with iron QTL only on chromosome 3. The two chromosome 3 introgressions overlapped on the proximal side of the QTL. Through Sub-NIL mapping and phenotyping we identified a narrow 250 kb region on chromosome 3 containing recurrent parent alleles required for iron-efficiency. Two homologs of *A. thaliana* bHLH038 were present within this region and were the only genes in the region differentially expressed in the roots 24 hours after being exposed to iron stress. Genomic sequence analysis uncovered a 12 bp deletion in one of the two candidate genes, Glyma03g28610. The 12 bp removes one predicted heterodimerization site and shifts confirmation of two others in the predicted model with the important strategy I transcription factor, FIT. Through PCR amplification we showed that the deletion was only present in the inefficient lines in both of the NILs and the Anoka x A7 population. We hypothesize the deletion disrupts binding with

FIT resulting in the heterodimer's reduced ability to activate FRO and IRT during iron stress.

The identification of the overlapping NIL introgressions in the Clark and Harosoy backgrounds in addition to the Anoka x A7 major QTL suggests that alleles in this region are required for iron-efficiency (Lin et al., 1997). However, it has been shown that there are multiple mechanisms for iron stress response and the QTL identified on chromosome 3 may not be universally applicable. In the quest for agronomically important traits it is paramount to utilize the appropriate tools and resources. The NILs used in this study were the ideal tool for delineating the Anoka x A7 single gene hypothesis. However, in another population their usability may be diminished.

## Future Research

This research has identified a strong candidate underlying the iron stress response difference between Fe-efficient and Fe-inefficient NILs and the Anoka x A7 population. To further advance the knowledge about this strategy I system, this study could be followed up with a knockout or knockdown of Glyma03g28610 gene in the efficient soybean NIL Clark. The knockout / knockdown could be accomplished using either virus induced gene silencing (VIGS) or agrobacterium transformation. The expected results of this study would be that Clark would no longer be able to mount a sufficient iron stress response due to the inability to activate FRO and IRT. A parallel study could also be performed using

overexpression the wildtype Glyma03g28610 in the inefficient lines to restore the iron-efficiency phenotype.

In this research, the candidate gene and the identified mutation were only tested in three populations. It would be prudent to screen multiple populations for this mutation to determine the agronomic value of using these tools in a breeding program. Rather than utilizing multiple bi-parental populations, association mapping would be a useful alternative in the determination of the potential application of this mutation.

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Lastly, I express my deepest gratitude to my family, including Lauren, Whimpy and the Browns, for their support, sacrifice and most importantly love.

## Appendix

**Supplemental Table S1**. SNPs identified by Method 1 on the single-library comparison

This table contains 172 SNPs identified using Method 1 on the single-library RNA-Seq comparison between the Clark/IsoClark 10-day root experimental data. The file contains a unique SNP identifier that includes the genomic location. The sequence surrounding each SNP based on the soybean Glyma1.01 genome assembly is also provided.

| SNP | [Clark/IsoClark] |
|---|---|
| >Gm01_53617124 | TATTGATACAAAGTTATATTTTTTCATTTCATTCAAACCTAGCGAACTATGCATCGGTTCCAA AGTTCACATTGGCCCCGACGCAGGCACGCAGCTCAGTTAGCAACAGCGTTTTTTTTTTTTTA TCACTTCATTCCCAACCCTAGCGAACTATCAATCGCTCCCAAAGTTCACATTGGC[G/C]CCC GACGCAGTCTCAGTCCGTACCAGCGTTAGTGCCAGCTCCACTGTCGCGTAGGGCTCGGAA AGCTCCGCATTTGGCCATTCGCGCTCTGTAAGTTTCCCTTTCTCTAATTCTCTCTCTCTCTTT CATCAAGCTTTGTTTTGCTTTGGACGTTTTCTCTTTGACCTAAGATCCAAAGT |
| >Gm02_5687687 | TGACCTACTTAGATTCTGGCCTGATCTGAGAACTGATAATTTTATAGAGAGCAAGTCATTAT GGAGGGACCAATGGAAAAAATTTGGATCCTGCTGTTTTATGATGCCAGATGACTATTTTGTT TATGCACTCAACAACAGAAAGAGATACGACCTAAAGAGAATCTTGACAAGTGCAGG[C/T]AA ATGTACGTATATAAAATGAAATTCAAATTCATGTTTCACACACGAAAAGTTAAGGAAAAAAGA ATAATACTTGTCCATGTTTTGAGCTTGAGTTGTTCTTGTTACAATTGGTATCCACTTGATATA TAGTGAGGAATGAGTTTCATACTAAGTTTATATAAAATTTATTCATGAAAG |
| >Gm02_42350182 | CGTGGGTGAAAGCGACCACATCGAAGAGCTTTGCCAAGAGCTTGGCGTCGTTGAGGTCGC CATCGACGATGAAGACGTCATGCTTGGCGAGGAGGGACTTGCGGGCTTTTTTCAGAGACG GATCGTAGTAGTCGTTGAAGTTGTCGAGTCCGACGACGCCGTCTCCGCGTCGTTTTAACG[ C/A]GAGGGAGACGTGGGAGCCGACGAAGCCGGCAGCGCCGGTGACGAGGACGGACATG CCGCCTTGACGGTGGATCTGGGCGGAGGTGCGGACCTGCTTCTCCCACTGGATCCCGCCC CAGGAGGCGGAGAGGTAGCGGCTGCCGGAATCAACGAAGCCTTGGAAGCTGAGATATGA AGCGG |
| >Gm03_36460374 | GACATTGCAAATTAAAATTTTCCATACAAGTTTCCTCAATCCTAATATAGTGATAGTGATAAA TAGAACTAAGACAACAAATTAGTACTAGGCTCTGTCAATCTTCATAGGCCAATACTTTTACC ACTCTTTAATAACTTATGACCCGATATTTGAAGGTGAGGATAACAATTGTAACAA[G/C]AAAA TTACAGGAAATACGGATTTTATTACATGCACGTAAGAAACACATCAAATTTCCACTCTCAAG AATCCAAAGAAAAGATAACAATGCATGCTCTCAAATCCTCAACATGCTAACTAACATCTTGC CAATGCAACTTCCTAAGGATGAATATTTAGACAAAAAAAAACATTAAAGAG |
| >Gm03_36554101 | ACCCATGTCTAGATGCACTATGGGCATCAGTGACATCAATCGCTCTTTGATGTGAACTCTC GTCCACTCTACAACCACCAATTATCATAGGTGAAGTCATTTTGTACATGAAAGTTAAAAAATA AGATGTTAGGCCGATTTTATTTAATGTAATTGTGTGTAATAAAATACATATAAATG[C/T]AAAT ACATTTAATATACTTTTTGTTATTCCCTAAAAATTTATTGAAAGATCTAATATTAGACCTAACA TATTCATTTAAGATGTCATCAAACAATGATTTAATTAATTTAAATATAGATAAAATTGAGAATT TTTTAAAATAGAAGGATCAAATATATTTATTTTAAAATAGAGAGACC |
| >Gm03_36559857 | TGTTTCTGCAGGTGGAAAAAACTCATAGATTAGAGTCCGAAATTCTAACTGAGAAGCTTTTG TCAATATATGAGAAGCAAAGGATTTTCTAATCAAACGATCTTAAGTGCTCTGATGTTAAATTT GACACCTAAAAGAGTCTTCACATATTTGTCATGCATGAATGGCAAGTTCGGAAAT[T/C]AGAA TGGAGTAATCACATCACATGCCGCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGCC GGNAGGAAGGTGCATGGATTTTAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAAT GTTACAATCAGCCTCACNTAGCAAAGTGTGACACCCTCTTTTCTCACAAATA |
| >Gm03_36559926 | ATGAGAAGCAAAGGATTTTCTAATCAAACGATCTTAAGTGCTCTGATGTTAAATTTGACACC TAAAAGAGTCTTCACATATTTGTCATGCATGAATGGCAAGTTCGGAAATNAGAATGGAGTAA TCACATCACATGCCGCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGCCGG[C/G]AG GAAGGTGCATGGATTTTAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAATGTTACA ATCAGCCTCACNTAGCAAAGTGTGACACCCTCTTTTCTCACAAATATATGTACTAATAATGA AAGGAATAGAAAGTTAGAATTAATGAAAAGTTTTAAAACACATTTAAATAAAA |

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| >Gm03_36560002 | CATATTTGTCATGCATGAATGGCAAGTTCGGAAATNAGAATGGAGTAATCACATCACATGCC<br>GCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGCCGGNAGGAAGGTGCATGGATTT<br>TAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAATGTTACAATCAGCCTCAC[G/C]TA<br>GCAAAGTGTGACACCCTCTTTTCTCACAAATATATGTACTAATAATGAAAGGAATAGAAAGT<br>TAGAATTAATGAAAAGTTTTAAAACACATTTAAATAAAAGCATTTCAAAAAGGATAAAAGGTT<br>TACATTCGTTTTTCTAGCATTCTAATAAAACTTATTTAAATAAATAATAAAA |
| >Gm03_36952394 | AAAAGAAATAAAAAAAAATAAGATCTGTTTTTTTTTTTTTTTGAGAAAGATCATTTTTTATTATT<br>ATTGTTTTGAATTTTGAGAATTATGTAATGATGAGAGGTTGATGTTGTGAAAAAAAAAAATGG<br>AAATCCAGGGAGGAGGCGGTGGTGGAGGTGGCAAGAGTGGAAAGACAATGTC[C/A]ACCA<br>ACAGCAAGGAGAATTTGTTCATAGTTTTTCTTGTTACACTTTGGTACTCTTCAAACATTGGTG<br>TGATCCTTCTGAACAAGTATCTGCTCTCAAACTATGGATTCAAGTTCCCAATCTTCCTCACA<br>ATGTGCCACATGTCGGCCTGTGCTGTCCTCAGCTATGTCTCCATTGTGTT |
| >Gm03_36959955 | AACGAATTGCAAAAGTTTTGGAACTGTTCTCAAATAAAAATGCTCCTCAAACAGCTGGTTCT<br>GACATAAACAGATATAAACTAGTTATGTTCAGTGCGCAGAGAGGACTGTTGTTGGCATATTT<br>GCCTTCAATCATTTCTTTACTCAACACCCATATATGTTTTGTCATGCCTGGAAATT[T/C]AGTA<br>TGGTATCAAGTCTTCTCAAAACTACATAGAATTAGAATGCGGTAACGAATGGCAGCATTAAA<br>AGCACACACTACACTAGCAGAAGAAATCAGCAAAGCAAGCCGGGTAATGCCCAAATGTAAA<br>AAAAGTAGCTTGGTTAGGCAATTCATGTCAATGTTCATCTACTTGTTTTTCG |
| >Gm03_36996777 | CATATATTTGCATTCACTTAACGTAGTCTTGATACCCCAATCCACTAACAATATTTTTTTTATA<br>TTATTATTATTATCATCATCATCAAAATGCCTGGCTTGTAAATGAAATGGATTTGGACCAAAC<br>TATCTAGTGACGTGCGCAATGAAATCATCCAGTTCCGCGCGAGAAACACCCCC[T/C]TCATC<br>CTTGGACCTGCGAATAGCATTTTTCAGGTTCATTGCCCTTTGTCTCATCTCATCACCTTCTTT<br>TGTTGCCATCAATCTCCTCACGGCATTCTCAACATCTGATGATGTCACCAACTCGTCCCTGT<br>GGTCCCAGTCCTTCACAACCACCCCAACTCTGAGCACTTCTGTTACCAA |
| >Gm03_36997184 | GCACCCCCATTGTCATGCTCTCCATGCAAGAGTTCCATCCACAGTGACTCATAAACCCACC<br>AGTTGAACTGTGACTTAGAATCTCCAATTGGGGTGCCCAGTCTCTCACAACCAACCCCGTG<br>CCTTTCACTCTCTCTTCAAACCCCTTTGGAAGCTCAGCAGTTCTCACGCCATCCTCAT[G/C]N<br>AACACATCTCCCTTGTCAGCATCCCTCACCACCCATATGAACTTTTGCTTGCTTTTTTCCAA<br>CCCGTTTGCAACCTCCTTGATTTGCTCCTCAGAGAAGCATGTTGTTGTCCCAAACGACACAT<br>ACAAAACTGACCCTGCTTCTTGCTTGTCAAGCCACTCAACACTGAAGTGCCTTG |
| >Gm03_36997185 | CACCCCCATTGTCATGCTCTCCATGCAAGAGTTCCATCCACAGTGACTCATAAACCCACCA<br>GTTGAACTGTGACTTAGAATCTCCAATTGGGGTGCCCAGTCTCTCACAACCAACCCCGTGC<br>CTTTCACTCTCTCTTCAAACCCCTTTGGAAGCTCAGCAGTTCTCACGCCATCCTCATN[G/A]A<br>ACACATCTCCCTTGTCAGCATCCCTCACCACCCATATGAACTTTTGCTTGCTTTTTTCCAAC<br>CCGTTTGCAACCTCCTTGATTTGCTCCTCAGAGAAGCATGTTGTTGTCCCAAACGACACATA<br>CAAAACTGACCCTGCTTCTTGCTTGTCAAGCCACTCAACACTGAAGTGCCTTGT |
| >Gm03_37024958 | GAAATGAAGAATGGGGTTTAGAGTTAGTCAAGACAAGTGGTGTGGTGTCCTATGTTATGAC<br>TGCACACATGTGAAGTGAAGTAGAGACTATTCAGTCCACAGCAGCTGTTTCTAGTGTGTGT<br>GTCATTGCATTCCTCATCCTTTTCCTCTTTTTTCACGCCTTAATTTCTTTCTCTCTTT[C/G]TC<br>CCTCTTCCTCTCTGGAATTTGGAGCATCAGCCAGCACTCTATGGATTCTCTGATTGGTAATT<br>GGCCATCCTACGATCCTCACAACTTCAGTCAGCTTCGACCTTCCGATCCTTCTAGTTCTTCT<br>GTAAGTTGCTGTTGTTGTTGTCTATGAAATTGATAATCCTGGTAATAATTACT |
| >Gm03_37027198 | GTTAAGCAACCTTTTTGTAGAAGGGTTCTTCTATAATAACTCTAGTTCATTTTCTCCAATGTT<br>ATTTTTCAAGTTGCTTAACTTTTGTTTTTTTAATTTCGGTAGACTCAATGGTGTTTTCTAATTC<br>AAAGTTTGCTAACCTGTTGAAGTTCCAACAGTGATAAGTACTGAAGCCAAAAA[C/T]ATCCTC<br>ATGAGACATATTTATCAGCATTCTGAGCAGAAGGTTAGTGACTTGATGGTTAAAGAGCATGT<br>GTTTTGGTGCAGTTAGGTATGCATATGCTTGATGCTCATAACCTTTTGTGTTTTTCAGTTGAA<br>TCCAAAAAGAGCTGCATCTGATAACCTTCTTTTACCAGAGCATGGATG |
| >Gm03_37144398 | TCCTTAAAAAGTTGACACCAAAACTGAAAAAGCATTTATCTATGTTGCAAATGTTTAGGGCTT<br>TCGTAAAATTGCAACAAGCAGATGGGAGTTTTTCAATGACAGGTTCAAGAAAGGTGAAAGA<br>GAACTTCTACATGAGATTCGGCGAAGAAAAGCTTGGACCAGCAAGCAACAACCAAA[G/T]G<br>CACCAAACCAAGCAACACTCCAAGACTCTGATGAAGATCAAAGGTCCTCATCAATCTCATCA<br>TCTTCTGGTTACACTACCCTTGTGGATGAAAACAAGCGACTCAAGAAGGAGAATGGGGTGT<br>TGAACTCTGAGCTCACAAGTATGAAAAGGAAGTGCAAGGAACTTCTTGATTTGGT |
| >Gm03_37165409 | AAGATTCACACGTACCATCTCGAAACAGTTGTTCTGATAACTGTTCCTGAGAAGCTCCATCA<br>CAGACAGGTGTACCAGAGATTAGTGTTTTTACTCTTTCTTCATTGTCAAGCCAGCGCCCAAT<br>TAAGCCTATCATTTCTCGTGTCAAGCTAATCTCCGCAATGGATGTATTTCCTGATG[T/G]GAC |

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| | GGAGTCAGTGCCCCCAATGCAAATTTCAAGGTCATTAAGTAAGCTTCTAGGATGAGAAGGG<br>ACATCAAGAAGTCTTTCTTGAATAGCTTGGCAGAGGTTTTGCAAGTCTGCAGAACTCACTTC<br>AGTAGGTTTGACCTGGAAACAGGGAAACAGAGAATTACATATTTGAAGATGCT |
| >Gm03_37827399 | GTCGAGTGATCCATACCCGCTAGGTTTTACACATTCTTTTCCCTGAAACAAACACCACCCCT<br>TTTAGGTCTTCTTCTAATCCTCCCTCTCTCTAACTTTCACACGCAGCGGCTTCTTCTTCCGTT<br>TTCCTGAATCGGTGTGAACAATGGCGACGTACGCTGCGATGAAACCCACCAAGCC[A/C]GG<br>GTTGGAGGAGTCCCAGGAACAGATCCATAAGATAAGGATCACCCTTTCTTCCAAGCACGTC<br>AAAAACCTCGAGAAGGGTATGCACCTATTTATTCTACTTTTTGTTTTTAAGGTTGTTGCTATC<br>CTTAGCCTTATGTTTCTAGTTTTGTGTTACTGTTAGTTTGTGCGGACTTGGTT |
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| >Gm03_37832228 | CCTTGTGTTCATGAAACTGCCTTTTGTTTTTAGGTACCAACACATGGGACAGATTTGAACTT<br>CGTGTGCACAAGAGGGTGATTGACCTCTACAGTTCCCCAGATGTGGTTAAGCAGATTACCT<br>CTATCACGATTGAACCTGGTGTGGAGGTTGAGGTGACCATTGCAGATGCTTGATCTG[G/T]A<br>TCCAAATTTTAACTGTTATGCTTCCTAGTTTTTTTTCCCTCTCTTTTTGTATTTTGTAAGTTTT<br>GATTGTGGGACTGAGTTGGATTGTTTTCTCTAGTTTTACGGTTGTAGACATTGATGAATACC<br>CGAGAAATGTCATCTTAATATATTCTAGAGTGTTACATATTTTGTTTGAAAT |
| >Gm03_37863675 | CTTTGATCTAATGTTTGCAAGAGCATCAGTCCCGCTAACGGTTGCAGCATCCGAGTGCCAC<br>GCTTCGGGAAACGCCTCATCAGCTTGTGTACCCATCCAAACAGCCAGCATCAGCTCCCCCT<br>TCGCCTTGTCACCCTTTCTGTCCTCCAGCCTATACCACTGCGGTGCCAAGGGACTGTC[T/C]<br>GGTGGAACACGCTTTGGGATCTCATTGAGGTCAAATAAGACACGACCAATGAAGTCATCTT<br>TCACGACATCCTTGTCCTTCACAGTGACCTCCAGTATGGAAGCCTGAATGCGGTCTTTGGA<br>GAAAGCAAAAACCTGGTTCCATTCGGGATTAGACTTCTTGTCGAAGTGCCGAGTGGT |
| >Gm03_38065066 | TGTGGAACCACCACTCAAGACTATGTTACCATAGAGATCCTTCCTGATGTCGACATCACACT<br>TCATGATAGAGTTATATGTTGTCTCATGGATACCAGGAGATTCCATCCCAATCATGGATGGC<br>TGGAAGAGAACTTCAGGGCACCGGAATCGTTCAGCACCGATCGTAATCACCTGCCC[A/G]T<br>CAGGTAGCTCATAGCTCTTCTCAACTGCTGAGCTGGTCTTGGCAGTTTCCAACTCCTGCTC<br>ATAATCAAGAGCAATGTAGGCCAGTTTCTCCTTCATGTCCCTCACAATTTCCCGCTCCGCAG<br>ATGTGGTGAAAGAGTAACCACGCTCAGTCAAGATTTTCATCAGGGCATCAGTGAG |
| >Gm03_38083417 | GTTTTCTTTTCTCTTCCATCCATGGATTCTCTGAGTTCCATCAACGGCGATTTCGGCTTCGA<br>CGGCGGCACGGATCGCAGATTCGCGTTTTCGCGCCAAGCCTCCTTCCAACAACCTCACAC<br>GCCGATAGACATTCCGGCGCACGGCCACTACGACCACCACCACTACTGGTCCCCGCGT[G/<br>A]ACGATAAACCCTCCGCCGCCTCTCTCCAAATATCCTCTCTCTCCTCCTTCGTTTTCTCCGT<br>TTTCCGAAGCGTTAGGTCCGGCCACAGGTACATGAAGAGGCTCTTTCTCATGATCTCGCTC<br>AATGTCGCGTACTCCACCGCCGAATTGCTCACTGGACTCTTCACCGGTCGCGTAGGT |
| >Gm03_38117453 | GTACATGAAATTATAATAACCGTTTTCTGCACTTGTACTTAATTATTGGCCTTACTTGCTATT<br>CTCATGAGCTACAGCAGCAATGTGGTTGCTTGTTTGCCCCAGCAAACTGCTTATGGAACGC<br>GCTTTCACCATGCCAAGCTTCATCCTCTTCTTCGTCGACGTCATTATTATCCCTGG[C/T]TTC<br>TTCTCCTCCTTCTCCCCAAAGGGCTCAGNATCATCAACACACTCAATTTGCTTCTCGAGAGA<br>ACAAAAAGAAGGGGAAGAAGAAGAAGGGTGAGGCACGTGGTGCACGTGCACCTCCTTTGG<br>TGCAGTTGATGCAATAATGGAACGGCTTCTAACACTTGTCATGCTTCTGAGTCT |
| >Gm03_38117485 | TTGTACTTAATTATTGGCCTTACTTGCTATTCTCATGAGCTACAGCAGCAATGTGGTTGCTT<br>GTTTGCCCCAGCAAACTGCTTATGGAACGCGCTTTCACCATGCCAAGCTTCATCCTCTTCTT<br>CGTCGACGTCATTATTATCCCTGGNTTCTTCTCCTCCTTCTCCCCAAAGGGCTCAG[C/T]ATC<br>ATCAACACACTCAATTTGCTTCTCGAGAGAACAAAAAGAAGGGGAAGAAGAAGAAGGGTGA<br>GGCACGTGGTGCACGTGCACCTCCTTTGGTGCAGTTGATGCAATAATGGAACGGCTTCTAA<br>CACTTGTCATGCTTCTGAGTCTTCCCTTCCCCAAGTGATGCTCACACAGCGAGT |

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| >Gm03_38132996 | TGACAATTTACCTATAGAAAAATGGTTGATTTAATTACATAATTACTATGATGCTTATTAAGTA GTGGTTTTGTTTTGAGTGGAAAAGGTGCACATAGTTTTGGTCGTGCGCAGTGTAGATTTTTC AACCAGAGACTGTTCAACTTCAGCGGCACAGGTAGCCCTGATCCCACGCTGAAT[A/G]CAA CCTATTTAGCGACACTTCAGCAAAACTGTCCACAAAACGGAAGCGGCAACACTCTGAACAA CCTCGACCCTTCGTCTCCGGACACCTTCGACAACAACTACTTCCAAAACCTTCTCAGCAATC AGGGCCTTCTCCAAACAGACCAAGAGCTCTTTTCCACCAACGGCGCCGCCACA |
| >Gm03_38136913 | TGTATTGGATCTGGGGTCCTTCATGTTTGCGACGAAATTAGGGTTTACTCCCAATTTCGCCC CAAATTTTGGGGGTTTTCGTTTCTGATTGTTCAATTTCATCACCCGACCCCCCGTAGAACCT GGGTTTCTTCGATTTGTGTTAAACTCGAGCTTTTTGGTGGAAAAATACTCGCTTTC[C/A]TTT TCCCTTTGTTGTTCCCTTTCCCTGCAATTGAAATTTGTAATAAAGGAAGCTTCTTTCTAGTTT TGTGATTGAAGCTGCGATGGAGGAAGAGACCTCCGATGCAATGAACCTTGATTTGAATCTG GGCCCAGGCCCAGAACCCGAAACTGGGCCCATAAGCAATGAAGCTGTGAACT |
| >Gm03_38170431 | TTAGATATCTTAGTATGGGAAAATAAAACGAAAATGTGAAATCTTTGCAGCTGTGGAAAGAT GGAGAGATGAAAGAAGAAGTCATTGGAGGCCATAAGGCCTGGCTAGTTATTGAGGAAGTC AAAGAAATGATCCAAAAGTATTTATGATTCTTCTATTTTATTTTTCTTGCTCCCTCAA[C/T]CC CCCACCCCACCTCACAAAAAAAAAAAAAGAAGAAAGAAAGAAGTTACAATTGAAGAAACTAA TCTTCCAATGTTTTTACTTTTTTTTCTTTAACATTTTTCATGTTGGCAACCGCATGTAGCTGTG TATCATATATATATATTAATGGAACTGTGTACCATAGCTGAAAGAAATTTA |
| >Gm03_38173719 | CGTCGTTGTCGTTGTCGCCGCCGGAGACGGCGACAACGACGACGGCGCAACCTTCTTGG GTTCCAATTCGTCCTTAACAGGACCTCCTTTGGCCATGCTCTGCACCCAAACCCTAACCTTC TCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGCATCCTTAATCCTCTTTCCAACCGG[T/C ]CCCTCGTCGTCGACAGTAACCCTAACCTCGGGATCCTCGTCGGCGTTCTCGTCGGAGATG TAGGGGATCTCGACGGTGCCGTCGACCTTGAGAAGNGAGGTTCCCAGGGTGTCTTTGGCC TCTCCCTGCCAATTGAGAGTGAGGCTGATCTCGTAGCCGGGGATGATCTTCCCCTTTCG |
| >Gm03_38173815 | GCTCTGCACCCAAACCCTAACCTTCTCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGCA TCCTTAATCCTCTTTCCAACCGGNCCCTCGTCGTCGACAGTAACCCTAACCTCGGGATCCT CGTCGGCGTTCTCGTCGGAGATGTAGGGGATCTCGACGGTGCCGTCGACCTTGAGAAG[A/ C]GAGGTTCCCAGGGTGTCTTTGGCCTCTCCCTGCCAATTGAGAGTGAGGCTGATCTCGTA GCCGGGGATGATCTTCCCCTTTCGGACATTGATGTAGGCCTCGCCGTCGAGGGAGCGAAG CGACGTCGTTTTGAGGAAGAGGTTACCCTCGCCGTCGAGGATAGGGAGGTTAGTGAGGAG |
| >Gm03_38174150 | CGAGGATAGGGAGGTTAGTGAGGAGGCTGGTGAAGAAGGTCTTGACCAGTCGAGGCAGTT GGTCTCGGACCAATGCCAGTTGTGGACATTGGTGCCGTCGGGGCGGTCCTCCACGATCCA CCGCTTGTCGCCCTCACCGTAACGAGCCATTGCAACTGATGCCTCTTTTCTGGGAGAGTT[C /T]CTTAGTNATTAATAATAATTGGATTGGGGTGAGGGTTATGAACTATGATGATTATTATTAT ATGTGTTGAGTGTGTGTGGAATGGTCTAGAATGAAAAGGAAGGGTCTAGAATGTTGATGTT GCTTTGGGTACACTTTCTTCACCAACCAACCAAAGCCCGAGAAGGTTCCCTAGGGTT |
| >Gm03_38174157 | AGGGAGGTTAGTGAGGAGGCTGGTGAAGAAGGTCTTGACCAGTCGAGGCAGTTGGTCTCG GACCAATGCCAGTTGTGGACATTGGTGCCGTCGGGGCGGTCCTCCACGATCCACCGCTTG TCGCCCTCACCGTAACGAGCCATTGCAACTGATGCCTCTTTTCTGGGAGAGTTNCTTAGT[G /A]ATTAATAATAATTGGATTGGGGTGAGGGTTATGAACTATGATGATTATTATTATATGTGTT GAGTGTGTGTGGAATGGTCTAGAATGAAAAGGAAGGGTCTAGAATGTTGATGTTGCTTTGG GTACACTTTCTTCACCAACCAACCAAAGCCCGAGAAGGTTCCCTAGGGTTTTCTTTT |
| >Gm03_38718231 | GATATAAAGAGGCTTACCGTTGATTTTGATTGAGGTTAAGTTTATGAAATACTCATCAGACG GTTGTGGATTGTCGGTGACGACGGTGTCGGCAACGGGGTTTACGATGAGTTGTGTGTAAG TAAGGTCAATTTTGGAAGAGAAAAGAAATGAGGAGGCAGTGGAGGCGAATATAGCTGC[G/C ]CCTGTGTTGGCTGATGAAGCTGGCAGGCAGAGAGTGAAAGAACGAGGTGAGGTTAATGAA GTGCTGATTTGGGCCGGGAGGGAGTAGTTGGACCGGCCCAATGAGGCGAGGCCCAATGC ATTGGCGGCGAGGCCCTGGAGAAGATGGGCCGTGGCGCAGGAGAAGATGAAGTCGGAGA T |
| >Gm03_38718672 | GACGGGGTTTTCGGGGAAGAGGGCGCAGAGGGAGGAGTTGTTGGAGCATGCGTTGGAGG GGAAGGAGTTGCAGAGAGGGGTGTTGCAGGGGATGTGGTGGGAGGAGGAGGAGGTGTAG GTGGAGTCGCAGAGGACCCAGCTGAGGGAGGAGCCAAGGTGGAGGTGGAGTTTTGTGGG TTG[A/G]AGTGGGGTTTTCAGGAACACGGAGAGAGTGTAGAGTTGGGTGGTGTCGTCTTTT GAGATTGGGGCTATGAGGGGGATTTGGAAAGTGGGTGTGAGGAAGAGGAAGAGTATCGCC AAGTTGAAGTTGCAGAGAGATGGAAGAGGAGGAGGCATTTTGGTTTGCTTGCTGGAGCAA GGAGA |
| >Gm03_3 | TAATTTCTTTTTTTTTTCGCATTTCTATTTTTTCTCCTCATTTCCTTGGGAACCAAACAGTTAG |

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| 8942920 | ATTAATGACAGTTAGATTGATGAGGTACCTGAATCCTGACATAGTCGGTACGATTCCAACAG<br>AAGGCGTTCCCTAGCATCTGGTCAACGGTCTCTGAAACACCGTCGAGCGCAATG[C/T]CAAT<br>CANCATTGACGTAGAGCACTCGCCGGCATTGTTCATTCTCTTCGCCGGAGCTCCGTTTCCG<br>ATGGAGAGAACAAGGAGATCCTCCACGCCGTTCACCGACGGGAAGTCGCGCTTGTTGTGG<br>AGGACGTGCGTGACCGCCGCCGCGGCCGGATTGTTCATCACTAAGCCGCCGTCG |
| >Gm03_38942927 | TTTTTTTTTTCGCATTTCTATTTTTTCTCCTCATTTCCTTGGGAACCAAACAGTTAGATTAATG<br>ACAGTTAGATTGATGAGGTACCTGAATCCTGACATAGTCGGTACGATTCCAACAGAAGGCG<br>TTCCCTAGCATCTGGTCAACGGTCTCTGAAACACCGTCGAGCGCAATGNCAATCA[C/G]CAT<br>TGACGTAGAGCACTCGCCGGCATTGTTCATTCTCTTCGCCGGAGCTCCGTTTCCGATGGAG<br>AGAACAAGGAGATCCTCCACGCCGTTCACCGACGGGAAGTCGCGCTTGTTGTGGAGGACG<br>TGCGTGACCGCCGCCGCGGCCGGATTGTTCATCACTAAGCCGCCGTCGACGGCGG |
| >Gm03_39788794 | ACTGGGTGAAACGAGCCCGCAAAAAGAGGGGTATATGCGAGTGGAATATTTAGTTTCGAAA<br>CTGTATTATGTTTCACTTATGCGCTGTTTTTTTCTTTCTGTTCCGTTTCCTATAAATCCATGCC<br>ACACCCTTCACCTTATTTTCCGCACATCATATTACTCTTTCACATCATTTCTCAA[T/C]CTTCN<br>TTGCTTGCACTCTCATCAGGTCAGTTTCACAACCCCTTCTTCTCCCTCTCTCAATATTGTTTT<br>GTTTTTTCTCTTTGGCATCATTATCTTTCTCATGTGTCACCCCATGCACATGCATCTCGCGA<br>CTCCATCACACCGATTCCTCTATTTTCTTTTCATAACAAAATACTGAGA |
| >Gm03_39788799 | GTGAAACGAGCCCGCAAAAAGAGGGGTATATGCGAGTGGAATATTTAGTTTCGAAACTGTA<br>TTATGTTTCACTTATGCGCTGTTTTTTTCTTTCTGTTCCGTTTCCTATAAATCCATGCCACAC<br>CCTTCACCTTATTTTCCGCACATCATATTACTCTTTCACATCATTTCTCAANCTTC[C/T]TTGC<br>TTGCACTCTCATCAGGTCAGTTTCACAACCCCTTCTTCTCCCTCTCTCAATATTGTTTTGTTT<br>TTTCTCTTTGGCATCATTATCTTTCTCATGTGTCACCCCATGCACATGCATCTCGCGACTCC<br>ATCACACCGATTCCTCTATTTTCTTTTCATAACAAAATACTGAGATATAT |
| >Gm03_39790874 | TTCAGTTGCATTCAAGGAAAGGTTTGATGCTCCACCATATGAGCTTGATCCAGCTGGCTCA<br>ACTGTTGCACAAGCAGACTACATTTGGAGGATAATTGTTATGGTGGGAGCACTGCCAGCTG<br>CGTTAACTTACTACTGGAGGATGAAGATGCCGGAAACTGCCCGTTACACCGCTCTAGT[C/T]<br>GCCAAGAACACGAAGCAGGCTGCAGCAGATATGTCTAAGGTTCTGCAGGTTGAGATTCAAG<br>CTGAACCGCAGAAAGAGGAGCAGAAGGCTAACTCATATGGCTTATTTTCAAAGGAGTTCCT<br>CCGTCGCCATGGACTGCATCTACTTGGTACAGCAAGCACATGGTTCTTGCTTGATAT |
| >Gm03_39795164 | TCTGCAGATGACAAAGCATGAAGAGGTAATTCATTAAAGGTAAAACCTAGTAGATTCTGATA<br>TGAAAATGAATTTAAGTGCTTAAACATTTCAATGTGCACGGTCTCTCAGCACTTCAAGATCC<br>ATTTCTGTGGGGTCAGTAGCCTGGATTTCATAATGGACACCATCTAGCTCACGTCT[A/G]AA<br>CCTGTCTTTAGTAGTGGCATAGAGCATCTTGGCACGNATCCGAGATGTTGAAGGGGACCTA<br>ATCAATATCATGCAATGAATAACTAAGAGTGATATCTCTGGCAAAAGCATAGAATGAGTAAG<br>TTAAGAAGCATGTTGTTGAGGATACATGAGAAGGCTGGGATAAAAGAAGTTCAA |
| >Gm03_39795203 | GTAAAACCTAGTAGATTCTGATATGAAAATGAATTTAAGTGCTTAAACATTTCAATGTGCACG<br>GTCTCTCAGCACTTCAAGATCCATTTCTGTGGGGTCAGTAGCCTGGATTTCATAATGGACAC<br>CATCTAGCTCACGTCTNAACCTGTCTTTAGTAGTGGCATAGAGCATCTTGGCACG[G/A]ATC<br>CGAGATGTTGAAGGGGACCTAATCAATATCATGCAATGAATAACTAAGAGTGATATCTCTGG<br>CAAAAGCATAGAATGAGTAAGTTAAGAAGCATGTTGTTGAGGATACATGAGAAGGCTGGGA<br>TAAAAGAAGTTCAATCCAAGTTTGTTCTTCACAAGAACAAGAGAGGAAGACAA |
| >Gm03_39964048 | CGGGCCATTCCTGCACCGATCAATGGAAGAATTTCAACAACAAAGCGAATCGCATTTACAA<br>TTTCGATGCGGATCGGCTTATGTTAGGGTTTGAGATCGAGAAGAAGAGAATTAGATCATAC<br>GCGGAAGCAGCAAGAAGCTGAGAAGAAATGCAATTGGCAAGCGAAGACTTCGACTTCC[A/T<br>]GTGAGGAGTGGCTTGAGTGCAACTGAACTAGAAGTCGTCGTCGTCTTGGTCGTGGCATTA<br>ATTTTAGTTTCCAATAATATCCTTGAATCCACGTTTTAACTATGCCTATCTTCGCAAAATCAG<br>AAAATGTTTTTTTTTTTTTTACAATAAAGTTTTAGACCAGGGTACTACTTGCATATT |
| >Gm03_39966061 | ATTTTGAGAATATTACATTGACTGCAAACACAACTCAAAATCCATTAGTGCAAATTAACATTC<br>GTCGCTTCATTCTAATAACGTGAGCCAGATTTTGATGTAACTGGTTCACAACACAAAAGGCA<br>TAAATGGCTCAATCACTTGACACCAGGCACCAGCACTAGTTCACAAAATACTGTC[T/C]ACG<br>CATGGAACAAAAGACACTTAAAATTTAGAGCTTCTACATCACTCAATACTTTGGAGGTGGCT<br>GCTGGGTTGGTAATAATCCAAAACGCTTCTTCAGAAGAACTCTCTGTCTTGAATATTTATCA<br>TCGGGTGAAAACCGGGCTGCAGTTCAGGAAAACCAGGTAAGTACAGAAAATG |
| >Gm03_39967974 | TATCGTTTATGTAAAACTGAAGATACATGGTCACTGCAAAAAAATTGAAATACATGAAATCAT<br>TGCCAGAAACATAGCTCGTCAGATGGAAACAATAATGAGTCTAGAGTTTTCGGAAACATAC<br>CTGATCTTTGATCGAAGGAAAGAACAGCAATAGAGGTAGAAACCTGCAATGGAGGC[G/C]A<br>GAAAAAGGGTTTAAGGTTTTCGGATCCTCTGGTCTATACAAAGTGTTTTGTTTCAACGAGAA |

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| | TGGGCCTGTCATTTAGGTATTGGTTATGGGAGATTTTATTCCTACACCGAGCATATTTCTTC<br>CTGCACCCAGCATATTTATGGAAAACCAAAAATACCTTACGTATAGTCTATAAG |
| >Gm03_39986148 | TTGTGAAGATGCTGCATGCAATCATTTGTTGAAATTTTTATGGCTGGAGTTTTATTTATACTT<br>TCTACTCGTGTGTTCTTAACTTTTTTATTTTTATCTTGTCTCTTAAGTATCATGATCAAGAGAA<br>GGGACGCAATTCGTCCCGATATGGCAGCAGTTCAAGAAGACCCATAATCTCAT[C/T]GTCAA<br>CCAGGCCAAGTTCCTCTGGTGATCATACTGACAGTCGTACTGGCCGGCTAACCTCAAGTGG<br>AAGCCGACAATCTGCCACACATAGAAATATTCAACCTATGCACGAGACAAAACAACCAACTT<br>ACACACGCTCTGGATCCACCAGAGGCAACCGTGATGATCCTCTGCGGAGTT |
| >Gm03_39993121 | CACTATTTGAAATATTATAATTAGGTGAGAGGGAAAACGATGATTGGGAAGGAGAAGGAGA<br>ACCTTTGGCGGTGGGTTTCTTGGTGAAGATGTTCATGGCGATCGGTGCGTGTTGTCACAGT<br>CGAAGGCAATTTACGGAGAGACACGCAAACACAACCCAACGATGGTGGAGAGAAGAAA[G/<br>A]ATCCTCGCAATTTTCATGTTTTATTTTTTTTATTTTTTTTTTATAATATATGTACTTTCTCATT<br>CGACTATATATAATATTTTAAGATTTCAGTTAACAGAAACCGCATAGGTCTTGGTCGGGTAT<br>TTAAGCATATAGTTGACTTGTCTAATTACACTAAGATGCTTATATGTTTTTGC |
| >Gm03_40055679 | CATTACCTTAAAGACTATTTAGCCGAGAAGGTAATACTTGAAGGAATAAATTGATGGTTTAG<br>CCTTATTTTTCTTTTTAATGGCTTAAGCTATGTTTATTTTTCTTCCAAATTTTTATTTTTTTGGT<br>TTGACATCTAACCTATACTTTCTATTGGTGGCAGATGTAAGGCACATACCTTT[C/T]GTGGAA<br>AACGTGGTGGCAATATATAGAAGCTTGGATGCCACTTTTTGTGCTAGTTTGTTTCAGTCGCG<br>TTCTTCTGGTGAAGCCTCTTTGTTTTTGGAGAGCTTTTCTGATTGATTGAAGAAAAAAAAGCT<br>ATGTATTACTTGATGCTGATTTGATATTGTCTTTTAAAATTCGTTGAT |
| >Gm03_40056070 | AAACAATTCTTAATTCAACTTCTAGTAGTTTAAAAACTGGCAAGCTTCCTCGGAACTTAACTA<br>ATTTGAATGAGGTTGGGGTTGGCCAAACTTTCAAATCCAAGAGTGTGGTGCATGATAAAGC<br>TGAGGAGCTTGAGTTGTCTTGTGGGAGAGGGAAGCCCAATCCAATGCAATCTTCCC[A/T]GA<br>TGGGACTTGGGGGCCGAGAACAGTGTGGAGTTATGGAAATGGATGTGAATCAAGTAACAC<br>AATCAGCACCTGATAGCCCGCCCTTTTGTGATACCAAAGGTTCAGATAATGACTGCAGTGA<br>TCAAGATAGTGAGCATGTAAGGAAACATACTCTCTTATTTATGGTCTTCTGTTTGT |
| >Gm03_40131229 | TTATATGTTAAACTTTCACCAAGAACAATAAACCACATAAGCCAACCCAGTCAACCCCTGAA<br>CAACATTTTGCAAAACAAGGTGCCCTCAACCTCATTCAAATCCATGCACTCACAAATCACAA<br>TGAGTAAAGCAGACTATAAAAAAGAAATTAAGATCACAAGAAAAACCAAGAAAACA[C/T]CTC<br>TTATAACTATCAATTAATCTCATCAAAACACTTCTCACTGAGAAGTCAAGCAAAAACAAACTA<br>TATGTGCCAAATGCCAATATTGTCTGCAATTCAACCTAAAACAATATCTGAAACNACTTCAA<br>GAAGCAGAAACATTACATAAACTAAAAACCCAGCTTAAACAATAGCATTTG |
| >Gm03_40131350 | CAATGAGTAAAGCAGACTATAAAAAAGAAATTAAGATCACAAGAAAAACCAAGAAAACANCT<br>CTTATAACTATCAATTAATCTCATCAAAACACTTCTCACTGAGAAGTCAAGCAAAAACAAACT<br>ATATGTGCCAAATGCCAATATTGTCTGCAATTCAACCTAAAACAATATCTGAAAC[A/C]ACTT<br>CAAGAAGCAGAAACATTACATAAACTAAAAACCCAGCTTAAACAATAGCATTTGCAGCACTT<br>GCAATCCTGGGCCACAGATCAGCACACTCCTTCCCAATAGGACCAGTGATAGCAGAACCTA<br>CAATTAAAAATCTCACCAATCAAACACTAAACATTTCACAGAGGAAAAAAAA |
| >Gm03_40132046 | GATTCACTATGACCCCAGCATTATCTGCCAAAACGCAAACAATAACAATTAGAAAACAGAAA<br>AAAAAATTAACAAAGACAGAGATCAATAATAAGGAAACAGAAGAAAAAGTGAAATACCTTCG<br>AAGTACATGTAAACACCGTCCTTTCGGCGCCACGGCTTGCGCTGACGGACGATGAC[G/A]G<br>CGGGGAGCACCTTTTTACGGAGATCAGGCTTTCCCTTCTTGACGGTGGCCATAACCATGTC<br>ACCCACGCAAGCTGACGGCAACCGGTTCAGCCTTCCCTTGATCCCCTTCACTGATATGATG<br>TAGAGATTCTTCGCGCCGGTGTTGTCGGCGCAGTTCACCGTCGCCGCCACCGGCAG |
| >Gm03_40154304 | TTATTCTAATGTTGGTGACGTGAATTCGTATGCTGGGGATCCGAATTCCATCCTACAGCAAG<br>CTCAATTCAGTGCAACTGGTGAGTCCAAGCCAGCTGGTGGAGCGGCTGATTCTAACGAGG<br>CCTCTGCTGGGGTTGGAAGCACAGCTGCTGACTCTACTATGGTATCTGACTACAATTC[A/G]<br>TCTGTAAATGNTGGTGTTGCCGGTGCAGTGACAAATACTTCTGGACTTGAAAACGGGAATG<br>CGTTGGAGAATGCTGATGGGTCGGCTGATGAGAAACAGCAAGCAGATGGTTATGGTGTGC<br>CTTTTTCTTTTACCTTTTTACTTTCAATGGAATTATCATGTTTTAAATTTTATTTTTG |
| >Gm03_40154315 | TTGGTGACGTGAATTCGTATGCTGGGGATCCGAATTCCATCCTACAGCAAGCTCAATTCAG<br>TGCAACTGGTGAGTCCAAGCCAGCTGGTGGAGCGGCTGATTCTAACGAGGCCTCTGCTGG<br>GGTTGGAAGCACAGCTGCTGACTCTACTATGGTATCTGACTACAATTCNTCTGTAAATG[G/A<br>]TGGTGTTGCCGGTGCAGTGACAAATACTTCTGGACTTGAAAACGGGAATGCGTTGGAGAA<br>TGCTGATGGGTCGGCTGATGAGAAACAGCAAGCAGATGGTTATGGTGTGCCTTTTTCTTTT<br>ACCTTTTTACTTTCAATGGAATTATCATGTTTTAAATTTTATTTTTGGACAATAAATT |
| >Gm03_4 | ACTACTTGAGGTCTGTCTTCACTATTACTTTCCTTGTCCTGCTAAATTCACTCATATTATGTA |

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| 0160427 | GTTGGTGATTCTTCTCTTTGTATTTCTAAGTGTTCTTCATCTCTAATGAGATTCTTTAATTCAA<br>TGTTACATGCAGGCTATATTGCATTTTGAGGCTATTCAACCCTTGCCAAAGCG[C/T]GTTGAT<br>ATTGACTTTCTGGAGTCATGGGTTGTCAAATTCATAATGCCTAACTCAGAGAGTCCTGGTGT<br>AGCAAGTGCAACAGAGCGTGAGGAACTTTCTAGTATTTTTCTGGAGGTAATTCCTTGTCAGA<br>ATGGTGTTCTGGCATGTGTTCTAAAGGAGTTTCCTTAAGAAATGTGTTT |
| >Gm03_40172340 | CAGACTACGGTTTGGAGGAAGAAGCCAGGGAATATGTCAACTCAGTTCATATAGATGATGA<br>TCCAGTGGACGAGTATAGTCTTCCTGAGCACCAGCAGCAGCTACAAGAAGAACTTGAAACC<br>GAAATTGTGGAGGAGGAAACTCCCGTACAGGAGGCATCTCCACCAATTCATAGCATTG[C/G<br>]ACACACTGTCCAAGAACCCCCTGTTGCTCTTGTGGAAGAGTCCTTTGAGGAGCCTCCTAAG<br>AAAACATATGCATCTATTGTATGTAATACTTTCTATACATGTTCTTTTTTTTTTGGCAGACTAC<br>CTTTTTTTGTGTGTAGTTATGTACTATCCATAAAAAAGGTACCACATGACTGGA |
| >Gm03_40179701 | CCACCATTCAGCACACTGAACCCATCTTCACTCTCACTTTCCATTTCTTCATCTTCCTCTTCT<br>TCACTCAAGCCATTGTGCTTGGCAGTAGAGAAAGAAGGAATGGTCTCCAGCACCAAGCTCC<br>TGTGTCTAGCTGAAAACCTCTTGGAAGGGTCTGAAAACTCAAACCTTTCTTCATTG[T/C]TGC<br>AAGAAAAGAAGGCCAAGTCTTGCAAGTTCCCATCAGATTGGACTCTTCTGATCAAGCCTTT<br>GTTTTGCCTTTCAAGCTCACCAATTGAGGGAGAGATTGGAGAAGAACCACATGCAGAGGAC<br>CCAGTTTGGTGGAAAGTAAGTTTGTGATAATGTTGTGGGACAGTGGTTGGTGGA |
| >Gm03_40211426 | TGGCGTACCAGCCGGTGTCGGAGAAGACGCCGTTGACGTTTTCCAACGGAGGACCGAGG<br>CCGGCGTTGGTAGTGAACTTGCACATGTTGGTCCAAAGGGATAAGCTTCTGCAATGCTTCA<br>ACATGTCCTCGTTGAAGCGCGAGGGAAGGTCGTGGACGAAGATGTAGCGTCCTCCGCATG[<br>G/A]GTCGCTCTTGTTGTCGGCGGTTCGGAGGGCACGGTCGAAGGGGAAAGTGGGTTCCTT<br>CGGTTCGGAAACTCGCTCAGGGAAGCCGAGGTTTTTACGAGGTTGTTGGTGTTGTTGTTGG<br>GATTGGAAAGTGATGGGGACTGCTGGGTCAGGGGCGGTGGGTTGGTGGCGGAGGACGGC<br>GA |
| >Gm03_40371846 | CAGAGCTCTTGGAGCAAGAAGTGGTCTCCCTTACCGCATAGATCCATGCTTGGCATCCTTC<br>ATGCAGTAGCATTCTTTACTACCACTGAAGTGAGCCAAATGGTTTAGAATAAATTTTTTGGTT<br>AGAGGAAGTGATATAATATTGGACATTTCTTCTACATCTTTGTTTCATACTTTCAT[C/T]AAAT<br>GTCAATTTAGAATTCAAAGCCAACTTTAACACTGCTGGAAAAGCTACCCCTTTCGTTGATTT<br>GTCACACACTTGCCTCACTATGGTGGTCTATATATACAAGTCCCAAGATACCATTCCATTTT<br>CACAATATTGATGTCTTCATAAAGCATGTGGTCTCGTGTATTTAACGTTGA |
| >Gm03_40459321 | ATTTTCAATTTGTTATATGATTTGTTGTACTTGTTTTTGTTTATTTACTTATATTCCATTTTCAT<br>GGACTTTGCAGATTGTTTCTGACTCAATGAGAGCTACAAATAAGAAAATAAATGGAACACCC<br>ATCAAGATGCTCATAGACCAAGAAATGTCCAAAGAAGTTGTTTCCAAGCACAA[C/T]CCACC<br>ACCAAATGTAGTTGCAAAATTAATGGGGCTTGAAGCCCTCCCACAGGGTGAGCTATCTGTG<br>GAGAGAAGCCATAGAGGAGATTATTCTCAACATATGTGTGGTCATTCAGGGACACCATTCA<br>ACCACTGGAACCTGGAAGATAGGTTTATGGACAAGGAAATGCTTCATGAAGT |
| >Gm03_40462434 | TGGATCCATCATTGAGGGACAAATACGCCAATCTCAATGACAAGGAGCCTCAGCAGCAACT<br>CCACGAGGCCAAGCGAAGGCAGAGGAGGTCCAATCAGAAGCTTGTATTCGATTGTGTGAA<br>TGTCTCACTAATAGAAATTACTGGTTATGGATCAGAGAAGAATTACTTGATGGGTAGTA[G/T]<br>GTTGTGCAGTGGGAGCCACAGCAGGGTCCAAGTCCCAGAAGCTGCATCTCCCCCATTGGT<br>GGACCTCATTGTGGCACAGATGAAGGAGTTAATATCTAGTGCTATGAGTTCTGTTTGGGTG<br>GTGGATTGTGGGGACAGTAACAGCCTGGTGGTAGAGAGTGTTGTCAGAAAAGAGGTTG |
| >Gm03_40462640 | GTCCAAGTCCCAGAAGCTGCATCTCCCCCATTGGTGGACCTCATTGTGGCACAGATGAAG<br>GAGTTAATATCTAGTGCTATGAGTTCTGTTTGGGTGGTGGATTGTGGGGACAGTAACAGCC<br>TGGTGGTAGAGAGTGTTGTCAGAAAAGAGGTTGTGGGCAAAGGGTGGGTTGAGCTTATG[A<br>/G]GATTGGAGATGGATATTTTGGTGAAGGAAGTAGAGGGGAAGCTGCTAGAAGAACTTGTG<br>GAGGATGCGGTGGTTGATTTGACAGGCAGGGCCTGAATGGTTGAAAACCCTGACATGGCT<br>TTCCGCTTTGGCTTTGCTCTTTTTTATAATATATATTGTAACTCTACTATTGTTGTATTC |
| >Gm03_40585266 | TAAAGTGCATAACAATTGAGTATACCATCTAATAATGAAAATAACGCAAATAACATAATGCTT<br>AAAGCAACGTTCATATCAGAAGGGAAAAATAGTTTGAATCCCATCCAACAAAAATCATGCGA<br>TTAAAATCCAATTAAAAAAGCATAAAGTAAAATAAGTTTTTAAAACAGGTATCTG[G/A]AGGA<br>AAGCAACTACATTTAGTCCACTTCCTCAATCTTGGGGCCAGCACCACTTCCACCAGAAGGA<br>GGAGCAGCATACTCATCCTCTGCTGCACCAGCACCACCCACGTCTGGACCAGCACCACCT<br>TGGTACATCTTGGCAATGATTGGATTGCAGATGCTTTCCAATTCCTTCATTTTG |
| >Gm03_40585499 | TCCACCAGAAGGAGGAGCAGCATACTCATCCTCTGCTGCACCAGCACCACCCACGTCTGG<br>ACCAGCACCACCTTGGTACATCTTGGCAATGATTGGATTGCAGATGCTTTCCAATTCCTTCA<br>TTTTGTCCTCAAACTCATCTGCTTCTGCAAGCTGGTTGCTGTCTAACCACTGGATTGC[T/C]T |

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| | GCTCAATTGCATCCTCAATCTTCTTCTTGTCAGCCGGGTCAAGTTTCTCACCAATCTTGTCA<br>TCCTTCACGGTGTTCCTCATGTTGTATGCATAGTTTTCCAAAGCGTTTTTGGCCTCAACCTT<br>CTTCTTGTGCTCTTCATCCTCAGACTTGTACTTCTCAGCCTCTTGAACCATCTT |
| >Gm03_40586108 | GTCAGAGTATGTTGAGAAAACTTGTTCCTTCTTTGTTGGAATTGTAGTGTTCCTAGGGATCA<br>GGACAGTCATCACACCACCGGCAGTCTCCAAACCAAGAGACAGAGGGGTGACATCCAGGA<br>GGAGAAGATCCTGAACCTTCTCATTGCCCTCACCACTTAAGATTGCAGCCTGAACAGC[C/A]<br>GCACCATATGCAACAGCCTCATCGGGATTAATGCTCTTGCAAAGCTCTTTTCCATTAAAGAA<br>GTCCTGCAGCAGTTGTTGAACCTTGGGAATTCTGGTAGAACCACCAACAAGGACAACATCA<br>TCAACACTTCTTTTGTCCATCTTAGCATCCCTCAAACATTTCTCCACCGGCTCCAT |
| >Gm03_40587775 | AATAAGTATAAAAAAAATACATAAACAGAACAATCGAATGGAAAAGATAAAATAATTTTGTTA<br>AGAGAGGTTACCGAAGACGGTGTTGATGGGGTTCATGGCGACTTGATTCTTGGCCGCATC<br>ACCGATGAGACGCTCGGTGTCAGTGAATCCGACGTAAGACGGCGTGGTTCTGTTCCC[T/C]<br>TGGTCGTTGGCGATGATTTCAACGCGGTCATGTTGCCACACACCGACGCAAGAGTAGGTG<br>GTTCCGAGATCGATTCCGATAGCAGGACCCTCTCCTTTTCCGGCCATGGTTTCGGCGTGCG<br>GCGTAGAGAAAGAAGAGATCTAAGAAAGAGGAAGAAGAAGATGATAACCACAGCGATA |
| >Gm03_40600203 | CTACGAAAACGCACAATTGGTATTGGCAGGGTAAATTGGTGAAGTTGAACAAAATGAAGCT<br>AAGAAATCACTGATGGAAAGCGGAAATTGGGGAACGATCTGATCCGTGAGCGAAAGGAAG<br>GAAATCAGAGACGAAATTGAGAGTGGTGTGGTTACCTTTGGACGCGGTGGCAGTGGGCG[T<br>/C]GACTTTTCCCTCTGATGAGTGTTGTTGTCGTGCTTCCTAGGTCTCGCTGCGGNGTTCCC<br>CCACAGTCCCTCCAACACAAATAAGAAGCAGAATAGTGTTTACTTAGTTGACCATTTTGCCC<br>ATCTCTATTTCCCAAATTTAGATAATAAGGTTTAAATACCATTTTATTCTTTTAAATT |
| >Gm03_40600256 | ATGAAGCTAAGAAATCACTGATGGAAAGCGGAAATTGGGGAACGATCTGATCCGTGAGCG<br>AAAGGAAGGAAATCAGAGACGAAATTGAGAGTGGTGTGGTTACCTTTGGACGCGGTGGCA<br>GTGGGCGNGACTTTTCCCTCTGATGAGTGTTGTTGTCGTGCTTCCTAGGTCTCGCTGCGG[<br>T/G]GTTCCCCCACAGTCCCTCCAACACAAATAAGAAGCAGAATAGTGTTTACTTAGTTGACC<br>ATTTTGCCCATCTCTATTTCCCAAATTTAGATAATAAGGTTTAAATACCATTTTATTCTTTTAA<br>ATTTGGCTGATTGTTTTTTAGTATTTAAAAAAATATATTTTTATTAGTCTTTCAAA |
| >Gm03_40603941 | GTCGGGTCGTGGAAAGGGAGGCAAGGGTTTGGGAAAGGGAGGAGCCAAGAGGCACAGGA<br>AGGTGCTTCGTGACAACATCCAGGGTATCACCAAACCCGCAATTCGGCGTTTGGCTCGCA<br>GAGGTGGTGTTAAGAGAATCAGTGGTCTCATCTACGAGGAGACACGTGGCGTCCTCAAGA<br>T[C/A]TTCCTCGAGAACGTTATTCGCGACGCTGTTACCTACACCGAGCACGCTAGAAGAAAG<br>ACCGTTACCGCTATGGATGTTGTTTATGCTCTCAAGAGGCAGGGCAGGACTCTCTACGGTT<br>TCGGTGGTTAATTTCTAGGGTTTCCATCGGCGTAGCAGCTGCTTATTGGTTATTGTTGTAA |
| >Gm03_40628097 | ATTTGCAAATAGAATGACGAGGAGGATTGAGGACTTCGTGTCCACGTTGTTCCTTCCCTTG<br>TACTTTGCTGCCAGTGGTTTGAAAACTGACGTGACTAAGTTACGAAGCGTGGTGGATTGGG<br>GGCTTCTTTTGCTGGTTACGTCCACCGCGAGCGTGGGGAAGATTTTGGGAACGTTTGC[C/G<br>]GTGGCGATGATGTGCATGGTGTTGGAAAATAAAATAAAATGAAGGAAAATAAATATGAAGA<br>AGATGCACAGTCTTGAATTAAATAACAAAATAGCAGTAGCAAATTAAATTTAATTGACAACAC<br>ATAAATAATGCATTATATCACACAATGAGCACAAGGAAAAATTAAATTAAGGGAA |
| >Gm03_40656449 | ATTAGATCAACCTTGGACCTCACGAACATATGAGCAGGGAAACACAGGATGTCACCTGGAA<br>CATCCAAGGGCATTCTAATGGACCCACCACTGCTGCACTTCTGAGAGAATTTAGAGGAAGG<br>CGTTATGGCGGAGACAAACGCCACCTGCGGCGACATAGACGCCGCTGCCACCATCAAC[A/<br>G]TTAGCAGCGTTATCCACGTGGCGGCATAGGTTAGTACAGGCCATGAGAGGTGCATACGG<br>ACCATGTTTGAGAACCAGAAAAAAGACATCTTGGGAAGCTCTATGAGGTAGTTGAAATCGT<br>GGGTGTTTCGGGTGGGCAATTTGTCTTTATAAACAAGACAGGAATGCAGTGAAATTGGT |
| >Gm03_40676583 | CCTTTCTAAAATTTCAGTATTTTCTCATTGAGCAAAAGCATACATTGCTTACAAACTATACCT<br>TCAAACTTTACTAACAGCCAAGTAATATAAATCAGATAACTTACAGGCAGAGATACAGAGCG<br>TGAGTAAGTTTGATGAGCAGAATGCTCATAGAGTGGTTCTGTGACTGAAGTATCA[G/A]CCT<br>CCTTATCAGACGAGCTTGAAGGCAACATGGTATTAGGAATTGGAAAGGTTGCAGATTTTTTC<br>AAGCACGCCATATTTACTTTTGTCGCTTGATCTTTCATTGCTTTACATATTTTTTCCTCATTCA<br>CATTATAGATGTCACTCCCCTCAGAAGCAAGTAAAGATTTCTGAGCATCT |
| >Gm03_40676856 | TGATCTTTCATTGCTTTACATATTTTTTCCTCATTCACATTATAGATGTCACTCCCCTCAGAA<br>GCAAGTAAAGATTTCTGAGCATCTTGAATGTGTAATGACTCACTAAAAGTCCTTCCAAGATT<br>ACTTATGAAGTTGTCGTCATGCACAACATTGGTATTAGAGCACGTGTCCATCAAT[T/A]GCAT<br>CAGGTACTAAGAGGCAACTAAAAAAACAACAATCAGATCAATGAGAATAAATAACACAATTA<br>TCACTAATCTACATAATAAGCATTAAAAATTAAAACATTCCACAGTTATGTTTCATTATTAATA<br>CATTGTGGACCAAAATTTAAAAAAAAAAGTTTTAAAATGATGACAGATG |

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| >Gm03_40678154 | CTTCATACATTACTAACATAAGTCGGAAAGCAAATGATACCTAAGCTTGAAAGTTGAACAAG<br>ATTACCAAAAAAATATACCTTATAAAACGACGTTTGGAGCTGCAACTACAACACTATCAAAA<br>CAGGAGCAGAGAATAGCAACCAAACACAGAAAGAACAACAATAGCAAACCCTCGAT[A/C]C<br>CGATCCGCTGACGAATTAATCACAGCTCGCTCAGAGCAGAACCAACAACAACGACGACCAA<br>AAGAGAGCGAGAAAAGAAAGAGAAGGTGGAAGAAAACGAAAGACCTAGTGTTAACTAAGAT<br>TACCACGCCGATCACTTTTTTCAAGATTTTTCAGACGATGAAAAGAGGATCCACCA |
| >Gm03_40683015 | CCACGCTCTTCTTTGTTCTCTTCTTCTTCTTCTCGCTTCCTCCTTCCTTCGATATCTTCTTCT<br>CGGCCTTGGGCTTCTTCTCCGCCGGAGCCTTCTCTGCGGGCTTTTTCTCCGCGGGCTTCTT<br>CTCGGCCTTTGGGGGAGCCATTGGTTGGTGAAGAGGGAAAGGAGAGGGTCGGTTTT[T/C]T<br>ATGATGGGAGAAAAAAACTGAATTAGATAGAACGAGTGAAGGAACAGAAGAATGTGTGTGT<br>ATATATAGGAAGAGAGAAAGCTTTTGATTGGAAGGGGTTGAGTCACGCGGATCGGTGACGT<br>GGCGTCTTGGATTGACATTGCGTTTTTTCAGCGCCCAAGGATTGCTTCCGTCTTTT |
| >Gm03_40685721 | ATCTACCATCAAAACAGCTAGCCTTAATGAAAAGGCAAAAGTAAAAAATTGCTATAAGATTA<br>AAAAACTGAGCAAAGATAAATGTATTATTGTAGAGAAATCTAGGTCTCGCATCCTTTACATG<br>TAATTTAAAGCTCAAACAAATTCCTCGATGCGGGCTTCTGAGATTTAGACTCTGAA[T/A]AGC<br>AGGGGAAATCAATCTCTGCTGAACACGGGAAATGAGATGTTGGCTATAACCTCTGCTCGCA<br>ACACTTTGAACTTGAATTTCCGATGAAGAATCATGTCTTATCTAGTACCTGTCAGGCTGTCA<br>CAGCAGGGGAAAACATGAGACAAGTCAAACGGGTAATAAAAAATAAAAAATGT |
| >Gm03_40785291 | GGCCTTACCCATGGATTCTCTTCCCAAATTGCGCCACCCTTCTCCATTTCCCACTCCCTTAT<br>CCTCTTCCCTCTCCTTCCGCTCTTTACCGCCACCCCATTTTCCTTCGTCGTCGTTTAGGTTA<br>CCCTCCATCAGAGCCTCCTCCTCACCCTCCCAAAACGACCCCGCTTTTCGCACCCC[A/G]A<br>GAAACANGCCCTCCCTCCCCCCCCTCCTCCAAACCCTAACCTCCTTCCTCTCCCCCCTCCT<br>CGAAACCACCTGCATCGTCATCGCCGCCGCCGCCTTCTTCTTCATGCGCTTCCACCACACG<br>CCCGCCGTCATCGCCGCTCCGCTCACTTCCCCCGCCGCGGAAACCGACACCGCCTT |
| >Gm03_40785299 | CCATGGATTCTCTTCCCAAATTGCGCCACCCTTCTCCATTTCCCACTCCCTTATCCTCTTCC<br>CTCTCCTTCCGCTCTTTACCGCCACCCCATTTTCCTTCGTCGTCGTTTAGGTTACCCTCCAT<br>CAGAGCCTCCTCCTCACCCTCCCAAAACGACCCCGCTTTTCGCACCCCNAGAAACA[A/C]G<br>CCCTCCCTCCCCCCCCCTCCTCCAAACCCTAACCTCCTTCCTCTCCCCCCTCCTCGAAACCA<br>CCTGCATCGTCATCGCCGCCGCCGCCTTCTTCTTCATGCGCTTCCACCACACGCCCGCCG<br>TCATCGCCGCTCCGCTCACTTCCCCCGCCGCGGAAACCGACACCGCCTTCACCCAGG |
| >Gm03_40823593 | TACATCTTAATTCGAAAATCTATCATCGACGAAGGAATCTACCGCCTCGGCGTGGAGAAAC<br>TTAGCTCCTCGCGCGCTAACAAGATGGATTGGGAAGTTCTTGATTTGAAGATCAAGAGTTG<br>GTTAGAGGCGACAAGGATTTCCGTTAGAACACTCTTTAACGGAGAGAGAATACTCTGC[G/C]<br>ACCACGTCTTCAGTTACTCAGATTCCGTCAGAGAATCATGCTTCGCCGAGATTTCAAGAGA<br>CGGTGCCGCTCTCCTTTTCGGATTCCCTGAACTCGTTGCCAAAACAAAGAAATCTTCGCCG<br>GAGAAGCTGTTCCGCGTGCTCGATATGCATGCTGTGGCTTCCGAACTGTTGCCGGAG |
| >Gm03_40874888 | CCTGGGGTGACCGTACAATATCTGAGAACCCTTTTCTCTGTTGCAACTTCTAGACCTCACGA<br>ACTCAGCATCCGATTCCGGCCACTTATAGAGGTTCACGTAGGAAGCCCTCACCGGAACAC<br>GTGGGTCACGTGCGTCGTTGATGCAGTTTGATATGCATACTGAGCTCATCTTTTTTTT[C/T]C<br>CCTCAGTTTCTCAGGTGAAACTGTGATAGCTAGTGGGAGTTTGTGTAGAAGGGTATAAATT<br>GAGAATATTAAAAAAAGAAAAAAAGAAAAAAGAAAAGGAGAAAAAACTTAGATTGCAAGAAA<br>AGGGTGTGGGAAAGGAAAGAAGGACTAATTGAATGTATTTATAGTGGGCATTATT |
| >Gm03_40886333 | TGTGGAATTAATCAGTTCCACTTTGCGATTGGAGCAGGGTTCTTTGACTGGAGAGAGTGAA<br>GCTGTGAATAAGACTAACAAGCGTGTGGATGAGGATGCTGATATTCAGGGGAAGAGGTGT<br>ATGGTTTTCGCAGGGACCACTGTTGTTAATGGGAATAGCATATGCTTGGTCACTCAGAC[T/C<br>]GGCATGGATACCGAAATCGGGAAGGTGCATATGCAGATACACGTAGCCTCGCAGAGCGA<br>GGAGGATACCCCATTGAAGAAGAAACTCAATGAGTTTGGAGAGAAGCTGACCTTGATAATT<br>GGACTGATATGTATTTTGGTTTGGCTCATCAATGTTAAGTACTTCCTTTCTTGGGAGTA |
| >Gm03_40889026 | CTCCTAGGGAGGAAGTATACCAAGCAATTGAAGACTGCAGAGATGCTGGAATTCGTGTTAT<br>GGTTATTACTGGAGACAACAAGAACACCGCTGAAGCTATATGCCGTGAAATAGGTGTATTTT<br>CTCCAGATGAAGACATTAGTTCTAAAAGTTTAACAGGTAGAGATTTTATGGAACTGC[A/G]TG<br>ATAAAAAGGCATATCTGAGACAGCATGGCGGGCTTTTGTTTTCAAGGGCTGAACCTAGGCA<br>CAAGCAAGAAATTGTGAGGCTGCTCAAAGAGGAAGGGGAAGTGGTGGCCATGACTGGGGA<br>TGGTGTTAATGATGCTCCTGCCTTGAAGCTTGCAGACATTGGTATTGCAATGGGCA |
| >Gm03_40906651 | TTAACAGTCACTAATCTTATTGGTTCTGATGCAACGACTCTGCAATTTCAATTGGCTGTAGTT<br>TCAGTAGTCAGAATTGTTTTATAACATCTTTGCTTGTAAGCTGAGTTTTGGTTACCTTGGTTC<br>TTGCCAGCCGATCGAGATCTCCTGTCAGAAGAGAACGAAGCCCAGTTTCTGAAG[A/C]TAGA |

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| | TCACAGAGTCGTGAGCCCTCCAAGATAAGGAAGCATAGTGCATCACCTGACCAAAGCAGC<br>CCACGGAAGAGAGGTGACACATCTCCTGGCAATGATAGGTTGGCCACTCATCAAGATGGG<br>TCTGACTACAGTGATGGTCCTAGAGGGAAAAGTAGAAGCCCTGCTAGCCCTGCAA |
| >Gm03_41007691 | CAAAAAAAGAAGCCCACTTAGAAGGACTCTTTAAATATATTTATATTCAACGTATAAAACCTT<br>TGATGCTGTTCTGCCAAACCCCAAACCCTAGTTTTGTCAGTAGCACACTTCACCCATGGCA<br>GTAGCAGCAGCTCGCCCTATCGTCTCCGTCCAAACCCTAGAGGGCGATGCAACCCC[T/C]A<br>CCGTTCCTCTTCCCGACGTCATGAAAGCCTCCATTCGGCCTGACATCGTCAATTTCGTCCA<br>CTCCAACATTTCTCGCAACAGCCGCCAACCCTACGCCGTCAGCAAGCGCGCCGGCCACCA<br>AACCTCCGCCGAGTCCTGGGGCACCGGCCGCGCCGTCTCGCGTATCCCGCGAGTCCC |
| >Gm03_41007937 | CAACATTTCTCGCAACAGCCGCCAACCCTACGCCGTCAGCAAGCGCGCCGGCCACCAAAC<br>CTCCGCCGAGTCCTGGGGCACCGGCCGCGCCGTCTCGCGTATCCCGCGAGTCCCCGGCG<br>GTGGTACCCACCGCGCCGGCCAGGGCACCTTCGGAAACATGTGCCGTGGCGGCCGCATG<br>TT[T/C]GCTCCCACCAAGATCTGGCGCCGCTGGCACCGCAAGATCAACGTTCAACAGAAGC<br>GCCACGCCGTCGTCTCCGCCATCGCCGCCTCCGCAATCCCCTCGCTCGTCCAGGCTCGCG<br>GCCACCGCATCGAGTCCGTCCCGGAACTCCCCCTCGTCGTCAGCGACACTGTCGAAAGCG<br>TCGA |
| >Gm03_41008255 | GGAACTCCCCCTCGTCGTCAGCGACACTGTCGAAAGCGTCGAGAAATCCAAAGAAGCCGT<br>CAAAATTCTCCAGAAAATCGGCGCATTCACAGACGCGGAGAAAGCTAAACTCAGCCACGGA<br>ATTCGTCCCGGGAAGGGAAAAATGAGGAACCGCAGGTATATCTCTGGCAAGGGTCCTCT[T/<br>C]ATAGTGTACGGAACAGAAGGTGCTAAGGCCATTAAAGCCTTCAGGAACATTCCCGGTGT<br>AGAGGTGGCAAACGTTGATAGGCTCAACCTTCTGAAGCTGGCACCCGGTGGCCACCTTGG<br>AAGGTTCATTATTTGGACCAAGTCCGCATTTGAGAAATTGGACTCTATCTATGGATCCTT |
| >Gm03_41008442 | TACGGAACAGAAGGTGCTAAGGCCATTAAAGCCTTCAGGAACATTCCCGGTGTAGAGGTG<br>GCAAACGTTGATAGGCTCAACCTTCTGAAGCTGGCACCCGGTGGCCACCTTGGAAGGTTC<br>ATTATTTGGACCAAGTCCGCATTTGAGAAATTGGACTCTATCTATGGATCCTTCGATAAG[G/<br>A]CCTCCGAGAAGAAAAANGGCTACTTGCTTCCCAGGCCCAAGATGATCAACTCTGACTTG<br>GCCCGTATCATTAACTCCGACGAGGTCCAGTCCGTGGTCAGGCCCATTAAGAAAGATGTTA<br>AGAGAGCACCTCTCAAGAAGAACCCTCTCACGAACCTCAATGCGATGTTGAAGCTCAAT |
| >Gm03_41008459 | TAAGGCCATTAAAGCCTTCAGGAACATTCCCGGTGTAGAGGTGGCAAACGTTGATAGGCTC<br>AACCTTCTGAAGCTGGCACCCGGTGGCCACCTTGGAAGGTTCATTATTTGGACCAAGTCCG<br>CATTTGAGAAATTGGACTCTATCTATGGATCCTTCGATAAGNCCTCCGAGAAGAAAAA[T/G]<br>GGCTACTTGCTTCCCAGGCCCAAGATGATCAACTCTGACTTGGCCCGTATCATTAACTCCG<br>ACGAGGTCCAGTCCGTGGTCAGGCCCATTAAGAAAGATGTTAAGAGAGCACCTCTCAAGAA<br>GAACCCTCTCACGAACCTCAATGCGATGTTGAAGCTCAATCCCTATGCTAAGACCGC |
| >Gm03_41171468 | TTCCGCAAAGAACCCTCACCCTTTATTGAAAGGCCAGTACCTCTCAATGTGGGTGTCATAG<br>TACAATAATGATCCCAGGGAATATATTGACAATCAATATTTGGCTTCTCCTGCCACAATTCT<br>GAAGATATAGGAAGATCAGTTGAACTCCCAGCATTAAAGTATCTACTAGTACTGCCT[C/G]C<br>CTCATAGACTGAAGGAATTCCAGGGCTCTTACGCTTGTGATGCCCTTGTCCACTTCCCATT<br>GTAAGATCAATAAAACCACCATCAACATGAAATGTTTGTCTGTCATAATTGGAGGAAGAAGG<br>TTGGTGTGCATAATTTTCCAACGGTATAAACAATGATGGTCCAGCACTAGACAAA |
| >Gm03_41185505 | CTGGCATGCAAATGTTCAAAATTAATGGGGTTATACCTTTGTCCAATGCATGGTACAATGTA<br>TTATTGCAGGTAAAGGGGCTTTCATCACAAGAATTTGCTGCCCGTAATGATTTGGCTCTTGC<br>ATTGCCGGATAGGATTCAAGCTATCCCAGATGGGACCCCTGCAGCATCCAAACAAA[G/C]T<br>GGAAGTTGGGCAGCTTCAGCCTCACGTCCTGGAATTAAATTTGATTCAGGTAATTGAAATTA<br>TCCATGTCTCATAGAAGTTTATCAATGGGAGACTTTTTAATTGATGGTCATCCATTCATTTTT<br>GTGTATCTTGTCAATTCCAGATGGGAAATTCGATGATGAATACTTCCAACAAA |
| >Gm03_41223681 | TATCAGCTATTTGTGAGGCTTTGAGGAGTTTGATGAAGGTTGTGAATTGTCCTGCTTTCTCA<br>AGCACTTGGGTGATGTTGGTGGGTCCCGCTGGTGCCGGTGCTACTTGGGCTGAAATTGTTT<br>GGATGAAGATGTTGAGGAAGAGGAAAGGGAGGAAATTGAATAGCTTTGTCATTGGTG[T/A]T<br>CCTTGTGAGTGAGGAAATTAAGAAGAGAAGACTAAGATGTTTGTTACAAGTGGAAGGAAGA<br>GATGTGGTGTCGTAATATATATTAAGAAGAGGGTGCATGGAAATTTGATTGTTTAAAAGGTT<br>AGGTGAAAGGTTGCAATTAGTATAAGGTAGCAAGAGGCCCTCATGCAATCAATTT |
| >Gm03_41228284 | TAGGCCTTGGTTTGAGTTGTTCAGCTGTGAATTGATTCTATCAGCTATTTGTGAAGCTTTGA<br>GGAGTTTAATGAAGGTTGTGAATTGTCCTGCTTTCTCTAGAACTTGGGTGATGTTGGTGGG<br>GCCCGCTGGTGCTGCTGGTGTTTGGGCTGAAATTGTTTGGATGAAAAGGAAAAGGAG[A/G]<br>AAATGGATTAGCTTTGCCATTTGTGTGAGTGAGGAANCTAAGAAGACTAAGATTTTTGTCAC<br>AAGTGGAAGAAGGGGATGTGGTGTTGTGTATTTATATTATATGGTGTTAAGGTTTGAGGGT |

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| | GAGTGGAAATTAGATTGGTATAAAAAGTTAGGTGAAAGGTTGCAATTTGTATAAGG |
| >Gm03_41228321 | CTATCAGCTATTTGTGAAGCTTTGAGGAGTTTAATGAAGGTTGTGAATTGTCCTGCTTTCTC<br>TAGAACTTGGGTGATGTTGGTGGGGCCCGCTGGTGCTGCTGGTGTTTGGGCTGAAATTGTT<br>TGGATGAAAAGGAAAAGGAGNAAATGGATTAGCTTTGCCATTTGTGTGAGTGAGGAA[G/A]C<br>TAAGAAGACTAAGATTTTTGTCACAAGTGGAAGAAGGGGATGTGGTGTTGTGTATTTATATT<br>ATATGGTGTTAAGGTTTGAGGGTGAGTGGAAATTAGATTGGTATAAAAAGTTAGGTGAAAG<br>GTTGCAATTTGTATAAGGTGGCAAGAGGCCCTCATGCAATCAATTTTTCTTTCTA |
| >Gm03_41234338 | GATGATTTAGTTCAAGTTTGGAGCATGGAAGATCGCAAGGTTGTGGCATGGGGCGAGGGA<br>CATAACTCATGGGTAAGTTGCCTGACAATTTTTAGTTGTGTGCTTGTAGCAAACTTTGCTAC<br>CGTAGGGTTAATGTAGTGTTTGTATCAAATGCCATGATCAGGTCAGTGGAGTTGCTTT[T/C]<br>GATTCATATTGGACATCACCAAATTCAAATGACAATGGAGAGACTGTTACATATCGTTTTGG<br>TTCTGTTGGTCAGGTGCTCAGAAAAATGTTTCATTATAATTTTTACTTTTTCTTTGTGTAGCTT<br>TTCATTCTAAGTAAAACTCATTGGTATACCTAACATGGATCTGTGGTAGCTTT |
| >Gm03_41274006 | AATATACACTGACAAAGTGATCCTCAGACCTCTATTGAAACGGTGATACATATAGGCATGCC<br>TATGAATTCTTAACTGTTTATTTTTAAAAACTCAGAAATTATTTTTAATACATGGCAGCAAGGT<br>ACCACGTATTATAGCCAACAAAAAAGCAAGAATCTATCAGCGCCAGGATCTAGA[A/G]TCAA<br>CAATAAACACAATATAAATGAGATATACTGTTCTGCATAACTTAAGAGTTCCCCAGCACCAA<br>TATTTCTCTAATTCTTCACACTTGTTACATGCTTGAGGAGCATGGAGACAACATCCCCTGAT<br>ATCCTCTCAGCCTCAGTTTTCAGGTGATGAATCTTTTCTTCTGTCTCTTGC |
| >Gm03_41275788 | GAAAAGGAAATCGTGAGAAACGGGAGCGAAAACGAGTTGATTATAGTAAGAAAGCGCGTG<br>AAATCCGAAAAGGGCTGCATTGGCGTGAAAATGGTAGATCTAAAAGTAAAGGAGAAAACCG<br>AAATAAAGAGATTGGAAGGTACCGTAGCAATCGGGTCTGTGTTAGATTCAGAGAAAACA[A/<br>G]GACACAGTGTCTCTAACGAAAACTGGAGGACTGCTTCGCTGATTTGCTTTTCGTCTTCGC<br>CCAATCAAATCAACACAACCCACCTATTTCTTTAATAATAAATAAATCACACATATATAATTTA<br>ATTTTACTCACAAACCATATTCTTTCGCAAAGTGTGGACATAAATAATAATGACA |
| >Gm03_41982791 | TGGATATGAGTGGAACAAATATAATCAGACTCACTATGATCATGACAACCCACCTCCAAAGA<br>TAGTCCAAGGGTACAAATTTAATATTTTCTACCCTGATCTTGTAGACAAGACAAAAGCCCCA<br>ACCTACACCATTGAGAAGGATGGCAGCAATGGGGAGACTTGCATTATAAGATTCCA[C/T]GC<br>AGGGCCACCATATGAAGACATAGTAAGTCTATTATCCTTTAATTTTATGAAGGATTTTTAATT<br>TTCAATCAATTTACTTATTTCCTTATTTTTTCCATGACAGGCTTTCCGCATTGTTAACAAAGAA<br>TGGGAGTATTCTCATAAGAAAGGTTTTAAGTGTGCATTTGAACGTGGAAT |
| >Gm03_42142835 | CCTTGTTATGAGAACTTAAGGCATCTTCTGTCTTAAATGACCTGCAAGCCAATATAAAAATTA<br>TTGTGAATTGATGTGCCTGATTACTAAGAAAAAGGAAAATAAGGAAAAGGAGGAGACAAAT<br>CAATATAAAAAGACATCTCCAATCACCTGTTGCAAGGCTTGCAGCTGTAATCTCCA[C/A]CTG<br>ACTTCGGAGTCTGCTGCTTGTTATTAGCAGTTGCTTTACCAGTCTGCTTAGAAGGGTGAGG<br>AGTTGCAACATGGACAACATTCTTGCTATCTGAACAGATCATTAATTCTCATCAATATAGTTT<br>CAGTTTATTGTGGTCACAACATGCATGCACAGACAAGTAAAACAATCAAACA |
| >Gm03_42179147 | CTCCGCGACCCTACCCTATCAATTTTCGTACTTCTTTTCGTAATTGCAGCGAAGAATGGCGA<br>AGAGGAAGGAGCGGATTCAGAACCCGGAGCCATTCGATCCGTACGGCGCCGACCCCGCG<br>AAGACGAAGAAGCGTTCGAAGCCGCCGAAGCGGCACCAGCAGGAAGAGCAGTTCATTGC[<br>T/C]CCCAAACTCAGCTCCAAGATCATGAAGCAGGCGCTGATCCAGCAGAAGGAGGAAGAG<br>AAGGAGGAAACGCACGAGAACAACGCCGCCGCGAATTTATTCGAAGAGGTTCCGAACTTC<br>GAGGAAGACGGCGGTGACGACATCGACGACTTCGCCGGGTTCTCCGAAACGCAGAGCCA<br>GTT |
| >Gm03_42224757 | CGTATAAGAATCTCGAATCCGCAAGTTTTAGATCCATTGAAATGAGCAATAGTAACAGTGCC<br>AACGAATGACGCAAGGGGTGACGCATGTGCTCTTAGTTGACAATTGGTGGGGTCCATCTAA<br>TCTAATGTTTGTTTTCTGTTGGTGTTGAGGTCCGGTGAAAAGGTACCGGATTGTGTT[G/T]GT<br>TTTCTCACCAACCAGGGGNGCAACTCTCGCAAGTGGCGGTTTCAAAAACATGACTTCACTA<br>CAGTGTTATGATCATAGCATGGTAAAGTCAATCAGCTTCATAGACTGAACTTAAACTAAATA<br>AACATTTGTCGGACGTGTCTTTTTTATATTTCAATTTGACTTGAAACTGCCGCC |
| >Gm03_42224778 | CAAGTTTTAGATCCATTGAAATGAGCAATAGTAACAGTGCCAACGAATGACGCAAGGGGTG<br>ACGCATGTGCTCTTAGTTGACAATTGGTGGGGTCCATCTAATCTAATGTTTGTTTTCTGTTG<br>GTGTTGAGGTCCGGTGAAAAGGTACCGGATTGTGTTNGTTTTCTCACCAACCAGGGG[C/T]<br>GCAACTCTCGCAAGTGGCGGTTTCAAAAACATGACTTCACTACAGTGTTATGATCATAGCAT<br>GGTAAAGTCAATCAGCTTCATAGACTGAACTTAAACTAAATAAACATTTGTCGGACGTGTCT<br>TTTTTATATTTCAATTTGACTTGAAACTGCCGCCGCCGCCGCCGCCGCCGCCGCC |
| >Gm03_4 | GCTCAAGATCGGCCCAAACGAACCATCCGAGCTGGCTATCCATGAAAATGCCTACGGTCTT |

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| 2243466 | GCCCGATATGCCGTCATATGCCAGGAGAATGGTCTGGTACCTATTGTAGAGCCAGAGATCC<br>TGGTGGATGGACCTCATGACATCAACAAGTGTGCTGAGGTGACCGAGCGCGTTCTTGC[A/T<br>]GCATGCTACAAGGCTCTAAATGATCACCATGTTCTGCTTGAGGGCACTCTGTTGAAGCCCA<br>ACATGGTCACCCCTGGTTCAGAGTCTAAGAAGGTCACCCCAGAGGTGATTGCTCAATACAC<br>TGTTACAGCTTTGCAGCGAACTGTTCCCGCTGCTGTTCCGGCCATTGTCTTCTTGTC |
| >Gm03_4<br>2243699 | TGAAGCCCAACATGGTCACCCCTGGTTCAGAGTCTAAGAAGGTCACCCCAGAGGTGATTG<br>CTCAATACACTGTTACAGCTTTGCAGCGAACTGTTCCCGCTGCTGTTCCGGCCATTGTCTTC<br>TTGTCTGGTGGGCAGAGCGAGGAGGAGGCAACCCTCAACCTCAACGCCATGAACAAGT[C/<br>A]CCAGGGAAAGAAGCCGTGGTCCCTTTCTTTCTCTTTTGGAAGGGCACTTCAGCAAAGCAC<br>TCTCAAGGCATGGGGTGGGAAAGATGAAAACATTAAGAAGGCTCAGGATGCTTTATTTGCC<br>AGGTGCAATGCAAACTCACATGCAACTTTGGGAACTTACAAAGGTGATGCTACCCTTG |
| >Gm03_4<br>2672131 | CCCCAAAACAAAAAAAGACAATTGCAGATCAATACGCAGCGAATGTAGAAGAACATGGAAA<br>ATTAAAAATAAAACTAAAATTAAAATAAAATTGAAGTGGAAAGTGAGAGAAACACTAACTTCT<br>TCAAATCCGGTGGTTGCCCTGATCTGCTCATTGTGAGGAGAAGAGATCACAGATGC[C/G]AA<br>CGAAGGAAGAAAATTTGGTTTCGAAGTGGCAAAACCTCAACTACGCTCACTCAAGACCCTA<br>ACATCGGAGGCTATACTCTTTATCGTTTAAAGCCAGGCCCAGTATACGAAACGATTGCTCAA<br>AGGCACATGGATCTGATAGCATTAGTAAACAGCCAGGACCAAAATATGGGAAAG |
| >Gm03_4<br>5026222 | CCTTTGGCCCTTCATCATAAAAAGTGTTGTAATTGCTTCCTCCTCTTTGCTTGTTGTTGGATT<br>TGAAAATGTTGAAAACTGAGAAAAAAGAAGATTTCCTTTGCCTGTTTTTGCCACCCATGGTT<br>ATGATTGTTGATTTCTTGGCTATGAAAGACTATAGTGTCACTTTTAGTGACTAGA[T/A]ATAG<br>GAACTTGTAGTATTTGTGGTGTTGGGTTAGAACTTCGAGGCTATGGGCCTCTCAATTTATAG<br>TACAAGTTAGGCCACTTCTTTTAACTGAGATTAAGGGTGGAGAATCTGATTCAAACCAGTGT<br>TTATGGTCCAATTAAAGCTGACATGGAACATTTGAAACTGTTCCATTTCAT |
| >Gm03_4<br>5416367 | GGTTGCTTGTTATAGATGTTGATGCTGCCCTACCGTTCAATATTCCATTATCCATAGGTGGA<br>CTGGTTCCCCACTTACCTTCTGATTCACTAGGCTCTATCACTTTCACGGACCCATCTGTCAA<br>TCCAACAGCAAATTGGTTGGGTTCCAGTGGATGAGCCGCAATGGCAACAGGATACG[T/C]A<br>GATTGATTCCTGCAATATAGTATACCACAATATGGATCACCAAATGGAAGTAAGACTTCACG<br>ATACTACATCCTTAAATAAATGCTCAATGTTTAATACAATAGAGAGTAAAATTGGGTCTGATC<br>TGTTGGGCAGAAACTTACCCGCTTAAAGCTGCTGGAGGTGAAAAGTATGTGGA |
| >Gm03_4<br>5503654 | CTAAATACACAAATAGAAAATGTTTTGAAAAGGAGCAGGGAGTGCAACATTATAAAGAGTG<br>GCCACTCAATAGTCAATAAGGGGAATCAAAAAATCAAATGCTAGTTTTTTGTAATACACGTC<br>AATGTAAAACATGGGAGCCACGATATGTTATCAGAACAGAAATATCATAAAAACTGT[T/C]AC<br>CGACGCCTAGAGCAAACAGTTTAATTTCAGAAGTGAACAATTGTAAAAAAAAAATAGAACAA<br>AGTTATATTATATTTCTTAAACTCTAAATCCTCTGCTGTTCCTCCTTCCTCTAGCCCTCTCGA<br>ACTTTCTTCCCTTTGCTCGTACATAGGGCTTGGTATGGCTGTGTGGCACACC |
| >Gm03_4<br>5516926 | AGGAGGAATGAACAATACCAAAAACAAACGCAGAATGGCTTATTAATTATAAATATACATTA<br>CATGATAAGGAGTAAAGATACACCGCTACTCTACCCTTACACTTTCTACTTACGATTTGGCA<br>ACCACTACGCAGCTTACTTAAGTAAAGACTTAAAGAAGCTAAACCAAAAGCTACCT[T/C]GC<br>ATGAACTTGGCAGAACTTCCTTGCAGACATTCAGACATTATACATGCACACAAAGACTAAAC<br>AAAAATGAATACAGCAAAGGCCAAAAAAGCTGCTACATCCTCAGCTTTCAGGTACGAGAAA<br>ATGCGTCACACATCGAAAGGAGAAGAAGGGCCTGATCTGTTCTGCCCTCTCTTC |
| >Gm04_4<br>4787569 | GGTGGGGATAGGCGAAGGAGGTGGCGACTGAGTAGTGAATAGGGTTTTTGATTGATTGAT<br>AGCAATAATTGGTGTTAGCGAAGCTTGAGAATTGAGATTTATGGGTCGCAATCGCAGTCGC<br>AGTCGCAGTGTGTCACGCTCTCCTTCCAATTCCCGCAGAAGAAGGTACTCTCCATCCCC[T/<br>C]GTTTCTCATCGCCACTCGAGAACTTCCAGGCGCCGCTCTCCTTCCCACAAGCGCCGTCG<br>AAGGCACAGAACCTCTTCCTCCCCCTCTCTTTCACGCAGCCCCACTCCCAAACCCAAGAAA<br>GATCAAAACAAAAGGTAACCAATCATAACCATTCTTTTATTTGCCTGGATTTTATCTTA |
| >Gm04_4<br>5061509 | AGAAAGAGCTGTTCAACTTTGTGATGAGTCACTTGGATGCAGCCACACAAGATGAAGAAGG<br>GTCTGCACCTGTTTTGTTTCACCCATTTGGGAGCTACCTTTTTGTTTCATCAGATGGAGCAG<br>TGTGTGTGGATTGTGCAACTTCTGTTATAAAGATGTTGCATTTGATGTTTGCATCAG[T/G]TT<br>CCCCAGCTTGTAGTATTGAGGACCATCTAAAGTATGGAGACTATGTTAAGAATTTGTCATTA<br>CAATTCTTGAACCAGAACAATTCCGTGCAGGGGAATATTCCTGATTCAAGCTATGAAGCAG<br>GACTTGAATTGTCGGTTCAATCTTCAGGTTTGGGTAACCAGGTAAATGCACTAT |
| >Gm04_4<br>5090419 | CCAACCCCCCTCCCCCAATAAAAATAGGAAAAGAAATTAGCTAACCACTAATGACTGATGAT<br>GTAAACAGTTATGGAGGAACCGTTGGCAGCTTGAAGAACATTGCGACTAGAAACATGTCAA<br>TTGCTTTGCAAACCAAGGCATACAATCTGACTGTTTTTGCCTGTATTCTTACAAATT[C/A]TGT<br>TGCAAAATTGGTGCAGTTACTGGAGTTTGATTGGTTTTACTATTTGCAGAGACATTGAATTT |

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| | GTACAGATTTGCATGTATAATAATACATCAGTTTTAACAAGAATTTGTACTGAGAAAATCACA<br>CGCCCCGTCCCTCTTGCAACTACTTTCACATTATTTACGTTAGATACTTCC |
| >Gm04_45152573 | ATATTGGTTTCAGAATTAGCTGAAGTACTATCAAGTTTGTCAATATCATGCCAAACACCAGT<br>CCTTCTTATCTCCATCTATCAAAGGTAAAAGTTACCATAAAAGCAGACAACATTGAATTTTCA<br>AGTGCTATCAAGTACCTGAAAGTTGTCGAATAAGCGCTCAGTAATGTTATCATCA[T/A]AGTA<br>CTTCATCTCATCCCATGGTCCATCTCCAACACCAACCAAAATAATCGAGAGAGGATAATGAC<br>TGATAATCAGAATAGCTCCACATTTAAGACAGATACATAAACAACAAAAGGTTACAAAGATA<br>TCACCAAAAAAAAATACAAGAGAAGTTACTCTACCTGGCAGCAATGATAGAA |
| >Gm04_45157974 | GTGGATTTGTTTAGCGTGGAGAGGAAAGCTTTGTTGCAGAGTTTGCGTTTGACGATGTTTG<br>GGTGTTTGAGATTGGGCGAACAGAAAGATGATGATGGCCATTTGTTAGACTTGTGTTGCGT<br>TGCGTGCACTAGTTGACTACTTCCCTTTCACATTCCTTCTTCCTTCGTGGTAGCACCA[T/A]A<br>GGTGCATTCCTTATCCATCCCTTAGTCAAAGCTTTTCTAACTCTAATAATTCCTTTTACTAAA<br>ACTTTCCTTCTAGACGCTTGCCACCTCATTCCTCAGGGATCCTTCCTCTGCCATTTTTTTTTT<br>TTACTAAAATGGGTTAAAATTAAAATTAATTATAATAATACGTTGAACAAAA |
| >Gm04_45380790 | GTTGTTTTCTTTCACAGCCAATGTGTCATCATCTTCAAAGAAACAATCAAGCAAAGATAGAA<br>TGTCATTGTCAACTTGATTATTTGGAGCTGAAGGATGTGCTGAGCAAGAGGTCATCAATTCT<br>GGTACACAAGATACAGAGCCAACTTGATTGCTTGGTGCTGAAGGATGGTCTGAGAA[T/A]GA<br>GGGCATCAATTCTGATGCAGATGACACAGAGCCAACTTGACAGTTTGGTGCTGAAGGATGT<br>GCCGAGCAAGATGGCATGAATTCTGAAACACGTGAAACAGAGCCAACTTGACTGTTTGGTG<br>CTGAAGGATGTGCCGAGCAAGAGGGCATGAATTCTGAAACACATGAAACAGAGCC |
| >Gm04_45594453 | AGGTAATAAAAAAAGTTAAACAGGAAACTTTTTCGCTTTTTCAATAATTGGTTGGAGACAAG<br>AACTATTTTTTGTGGAAGACATCTTAGACATGTATAGTTTAGTTTATTTTCAATTTTTCTTAAC<br>AGGAAACAATCATTAGTAATTACTCTCATAAAATTGGTGATGCCAGCAACCAAA[A/C]TTTTG<br>GTGTTGACTGCGATGAGCAGTAGTACATTAGGCCTCATTGAGGTTTATGACAATCATGGCC<br>GTGCTTACCCTTGCAAAGGAAATGAACATGAGAAAATCTTAATCTTATAGATCCCTAGAAAA<br>CCTTAATAAACTCATCTACAAAATCATAGAAATGGACTCATAACTTCGTAA |
| >Gm05_38251772 | TGCTAATATTTCTTTGATACCCTCTGTAACCCCAGATCTGTCTGGTAAGGTTGATTTGTGGC<br>CAAATGAAGATGGTAAACTTGAGCAGCTTCACTCAGATGAAGCATATGAGATGATTCAAAAC<br>CACTTGAGTCTCATTCTCGGTAACAAAGCTGGAGATTTAACATCAGTAGCTGAAAT[C/T]AGC<br>AAATTCAGGGTAGGGCAGGTCTATGCAGCATCAGTGATGTATGGTTATTTTCTTAAGCGAG<br>TTGACCAAAGGTTCCAGTTGGAGAAGACAATGAAAGTTCTTCCAAATGCAACAGAAGAAGA<br>GAATGGTGTTCATCGAAATACGATGGACAATGCAAGACCCAGTATTGAACAGGA |
| >Gm05_38278658 | AGGTTCCCTCCCTTCAGATCTGGCCTCCTGCGTCAACCTCCGCAACCTCTACATTCAGCGC<br>AACTTGCTCACCGGCCAAATTCCACCCTTTTTGTTTCATTTGCCGGACCTCGTTCGCTTGAA<br>CATGGGCTTCAACAACTTCTCCGGCCCCTTTCCGTCCGCCTTCAACAACCTTACCCG[T/C]T<br>TGAAAACTTTGTTTCTCGAAAACAACCAGCTCTCCGGCCCAATCCCCGACTTGAACAAACTC<br>ACCCTCGACCAGTTCAACGTCTCCGACAACCTCCTCAACGGCTCTGTCCCTCTTAAGCTTC<br>AGACATTCCCTCAGGACTCTTTTCTAGGTAACTCCCTCTGTGGCCGACCACTCTC |
| >Gm05_38279366 | GGAAGGGAACGCGAAGAAGTTGGTGTTTTTTGGGAATGCGGCGAGGGCGTTTGATTTGGA<br>AGATTTGCTCAGGGCTTCGGCGGAGGTTTTGGGGAAAGGGACTTTCGGGACGGCGTACAA<br>GGCGGTGTTGGAGGCGGGGCCGGTGGTGGCCGTGAAGAGGTTGAAGGATGTGACAATTT<br>C[C/G]GAGAAGGAATTTAAGGAGAAGATTGAGGCGGTGGGAGCGATGGATCACGAGAGTTT<br>GGTGCCTCTCAGGGCTTACTATTTCAGCAGGGATGAGAAGCTCCTTGTCTATGATTATATG<br>CCCATGGGAAGCTTGTCTGCCCTTTTACATGGTCCGTCTTCTTTCTCTTTTTTGTGCTTGCT |
| >Gm05_38280387 | GGAGTGGACCTCCCCAGATGGGTTCAATCCGTGGTTAGAGAAGAGTGGACTTCTGAGGTC<br>TTTGATCTTGAGCTCCTTAGGTATCAAAATGTAGAAGAGGAGATGGTTCAGTTGTTGCAACT<br>TGCAGTTGATTGTGCAGCACAATACCCTGACAAGCGCCCTTCAATGTCTGAAGTGGTA[A/C]<br>GGAGCATACAAGAGTTGCGAAGGTCTAGCTTGAAAGAGGACCAGGACCAAATCCAACATG<br>ACAATGATATACTATTATAGAAGAACATGTATCTTCTCCCTCGACTTTGCTTTGTCAGAGTCG<br>GAGCCCATATTTTACTTGCTAAATCCTGTGCGTATGTTGCTTGCATTCTGTTGGCT |
| >Gm05_38337295 | TTTTGTCCAATACTGTTAGTTTTCTAACGAGGGGGAGGAAAATAAAATGAGGGGGCCAAGA<br>GTTTTCTTCTCAAATTCCAAATGAGGGGAACAATTGTTATGGCAAATTTACCAAATATTCAAA<br>CCAAAAACCAAGACGTTGAAATTATTTTTTAGCAAGGAAGCCAATGGCAAGTGACC[A/T]TT<br>GTTATTCAAATCGAAGAGCATTCTCCTCTCAGCAGATCGTCATTCTAATTCGAAAGCAGCTA<br>TGAATCTTAAACCAACATAAAAGACACAGATAACTATTCCGGCCACACAGGAATTAAATATA<br>GCTAGAACAAGGCATATGATAGCAATAAAGCATGTCAATTTTTCTTGGCAATG |
| >Gm05_3 | CATAGGAAAGTACATAGAACAAGTCTACAAGGACCTTCCACCCACTCACCCTGCTTTGTTG |

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| 8402327 | ACTCACCATCTCAACCGATTGAAATCCTCTGCCCTCCTCGTCCTCGTCAAGAAATCCTACAA<br>GCTTCCTGGATCTCATCATCTGCCTGCGCTCCAGCCCCAAAAGACCCGTGGTCGTCC[T/C]<br>CCCAAGCCCAAGCCCCACCCCGTCTGGCCTGCTGCAGCCCTCACCGACAGCCCTGCTCTT<br>CTATCCGCCAAAAGAGGCCCCGGTCGTCCTAAAAAGATTGGTGTCAGCCCGCCAGGCCCA<br>AGGGGTCGTCCACCCGGGACTGGGAGATCTAAGCTGCCCAAGAGGCCTGGCCGTCCCCC |
| >Gm05_38432746 | CATTAGTAAGACTTTCCGTCGCCTGCTTGAGGTAAGTGAGAAACAAACATTTACTGGTCCAC<br>CGGAAAATGTCAGAGATCATGTTATGGCTGCCACAAGGGTTCTTAACAAGGGAGACTTCCA<br>GAAGGCTTTTGACATTATTGTGTCTCTTGATGTGTGGAAATTTGTGAGAAATCGAGA[C/T]AC<br>CGTACTTGAAATGCTGAAGGACAAAATCAAGGAGGAGGCATTGAGGACATACCTCTTTACC<br>TTCTCTTCATCTTATGAATCGTTGAGCCTGGATCAACTCACAAAATTTTTTGATCTCTCTGTT<br>TGTCGCACTCATAGCATTGTCAGTAGGATGATGATCAATGAGGAGCTTCATGC |
| >Gm05_38433427 | TGGGAGTGGCTATTCAAGGGGACGAGGAAGGGGTTCGTATGGAGGTTCAGGGAGGACTG<br>CTCAAAGGGGTTCAGCATTGAGGGGACCCCAGGGAGATGGATCTACTCGCATGGTTAGCC<br>TTAAGGGAGTTCGTGCCTGAATAAGAGTTTTGATAATTTGGCTAACGCACTATAGCATTCT[A<br>/G]GTTTTCATTCTTGTAGGCTTTAATTTTCTTACGGATTTTATCTTTGTTTATTTGTTACATTG<br>GAGCTTGCTTTCATTTTACACCTATTTTCACCTGGTTTTATTTTGTTTGAATTGTACCCTTAAG<br>TGATGCATATTGACCTTGCTCATTTANGTGAGCTATCAATGTCTTTCACACAA |
| >Gm05_38433580 | AATTTGGCTAACGCACTATAGCATTCTNGTTTTCATTCTTGTAGGCTTTAATTTTCTTACGGA<br>TTTTATCTTTGTTTATTTGTTACATTGGAGCTTGCTTTCATTTTACACCTATTTTCACCTGGTT<br>TTATTTTGTTTGAATTGTACCCTTAAGTGATGCATATTGACCTTGCTCATTTA[C/A]GTGAGCT<br>ATCAATGTCTTTCACACAAACTTATCTTTGTTTTTCTTTTTGTAATGAAAGTAATAATTTAAAG<br>AAATTTTTCATAATTTTCTAATTACCTAATTTATCATTGTTATAAATATTAGGCTTAAATATTAA<br>TTTTAAACAAATAATAGTAAATTTTGGGCTCATTTGTTAGAAC |
| >Gm05_38589019 | TGCTGAGGCGCTTGAAGTTATTCCCTATACTCTGGCTGAGAATGCTGGTTTGAACCCGATT<br>GCCATTGTTACCGAGCTGAGGAATCGTCATGCACAGGGTGAGATAAATGCTGGAATAAATG<br>TGAGGAAGGGTCAGATTACCAACATCTTGGAGGAGAATGTGGTGCAGCCCCTTCTTGT[T/G]<br>AGCACAAGTGCGATCATGTTGGCGACAGAGTGTGTGCGGATGATTTTGAAGATTGATGATA<br>TTGTAACTGTGAGGTAGAGTTGATTGAACAATGTGGAATTTAGAGAGAAACTGAATCACCCA<br>TTATCTTCTTTTTTTTTTTTTTTGTACTTCGTGCTTTAATTTTATGTTGGTAGTTT |
| >Gm05_38596037 | GTAGATAAAATAGAGGTAGAGGTGTGGTAGATTTGAGAGCAACATTGAAATGCATGCCAAG<br>ACAGACTCGGAGGTAACAAGCCTGGATGCGTCGTCCAGCACAAGGTCTCCTCGGCGAGCA<br>GTGTACTACGTTCAGAGCCCTTCCCACGATGGGGAGAAAACGACGACGTCGTTGCACTC[C/<br>A]ACCCCTGTTCTCAGCCCCATGGGTTCCCCTCCTCACTCTCACTCCTCCTCCAGCCGCTTC<br>TCCGCTTCACGCCACCGCAATAACCATAATAATAAATCTTGGAAGGGCATCGACGTCATCG<br>AAGAAGAGGGTCTTCTCCAATCCGAATTAGATCGCCAACATTCTCTCTCTCGTCGATA |
| >Gm05_38913395 | AAACACAGAATATAAAAGAAACAGAAGGATTATATATCATATGATAGTTGAAACTTCCTTCCA<br>AGGGAAGTCTCTCTCTCTCTCTCTCCCTCTCTCTCTCTCTCCCTCTCTCTCCCTCCCTCT<br>CTCTCTCTCTCTCTCTCTATATATATATATATATGTACATGTCTGTGTGTCTATA[A/G]TAAGT<br>TTCTAACATCTAAGGATAGCCCTGTCTCTGTCTGCCAATCCGAGGGGTGAGCGAGAGTGAA<br>GGTGGTTGACATCTCTGAGAAGGGCACGCCTCATGTGTAGCTGAAGTGAAGGGTGCTTTAT<br>TTTCTCAATTTCTTCCTTAATTTTGATCACTTGGCTGTGAACTGCAAAACCC |
| >Gm05_38913666 | CACGCCTCATGTGTAGCTGAAGTGAAGGGTGCTTTATTTTCTCAATTTCTTCCTTAATTTTGA<br>TCACTTGGCTGTGAACTGCAAAACCCATGCAACCCTCTCGCGGAGGAGTAGGGGTCCTGT<br>TCTCCATCTTCTTCTGCAAACTCACAAACAGAGCCTTTTACAGGAACCAAATATGTG[C/T]GA<br>AATGTAATTTTGGCGTTAGGGATACCTATTCAAGGATATATATATATATATACCCGGAAGAA<br>GGAAAGAAATATCAGATTTTGAGAGAGAGGAAATAAGGAAAAAAAATCTTTATTTATTATTTA<br>TTATAAAAAAAGGAAGTTTTATATGGGCTCCTTCCCGTCCACCTTCTCCATT |
| >Gm05_39082457 | TACATAGAATTACTTAATATTTGATTTTTTCATGAGAGTGATTATTATTTGCTGCAGCATGTG<br>GTGCTAGTGGGGCTCTGTATACGCTGATTTGCTGTGTCATTGGCTGTGGCTGCCTATACTC<br>TTGCTTCTACCGCCCCAAGATGAGACGACAGTATGGTCTAAAGGGAAATGGTTGTT[C/T]GG<br>ATTGCTTGANTCATTGCTTCTGCGAGCCCTGCGCCCTCTGTCAAGAATATCGTGAGCTTCA<br>ACACCGTGGATTTGACATGATTATTGGTATGCACTCATTATATATATATTAACACTACTCTAT<br>TTGCTAAATACCCAGCTATGCAAAGTTGGAAAACAAATTTCTTATTTTATAGA |
| >Gm05_39082469 | CTTAATATTTGATTTTTTCATGAGAGTGATTATTATTTGCTGCAGCATGTGGTGCTAGTGGG<br>GCTCTGTATACGCTGATTTGCTGTGTCATTGGCTGTGGCTGCCTATACTCTTGCTTCTACCG<br>CCCCAAGATGAGACGACAGTATGGTCTAAAGGGAAATGGTTGTTNGGATTGCTTGA[C/T]TC<br>ATTGCTTCTGCGAGCCCTGCGCCCTCTGTCAAGAATATCGTGAGCTTCAACACCGTGGATT |

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| | TGACATGATTATTGGTATGCACTCATTATATATATATTAACACTACTCTATTTGCTAAATACC<br>CAGCTATGCAAAGTTGGAAAACAAATTTCTTATTTTATAGAGAAACTCCTTTT |
| >Gm06_5<br>721969 | TTTTTGGTAGAATAATATCAACATTGACCAGAAGCATAGACACGATATTCCCCGCCATCAAG<br>TTAAACAGGTACGCTCATTTATTTTAACACAGCCCTATTTAAATATCCACAATTTTGTGCTTC<br>ATTTCCCTTTTATTATTTCACTGTTGGGGCAGTGCTAATCAGTAACTCTGAAATA[A/T]NCAG<br>GTGATATGTTCTCTTTGTGAGACAGAACAAGAGGTGAGTAGTGAGTTTAGATTTTCTTTAGT<br>ATTTTTGTATGTAATCCTCCACAATGATATGTTAATTGTAAGGGAAGACTTAAATACTTGATT<br>AAGCTGGATTAAATCATTATTTTTTGTCAAATAATAGAGAAATGATCTCT |
| >Gm06_5<br>721970 | TTTTGGTAGAATAATATCAACATTGACCAGAAGCATAGACACGATATTCCCCGCCATCAAGT<br>TAAACAGGTACGCTCATTTATTTTAACACAGCCCTATTTAAATATCCACAATTTTGTGCTTCA<br>TTTCCCTTTTATTATTTCACTGTTGGGGCAGTGCTAATCAGTAACTCTGAAATAN[A/C]CAGG<br>TGATATGTTCTCTTTGTGAGACAGAACAAGAGGTGAGTAGTGAGTTTAGATTTTCTTTAGTA<br>TTTTTGTATGTAATCCTCCACAATGATATGTTAATTGTAAGGGAAGACTTAAATACTTGATTA<br>AGCTGGATTAAATCATTATTTTTTGTCAAATAATAGAGAAATGATCTCTG |
| >Gm08_3<br>461787 | CAAAAACAACGACTGCACATTGTGCCCTCACGAGATCACCATCTGAGGTGGATCCTCAGCA<br>GCTGAAAGATCTGTCAATTACAACTTAGATACATATTCAACACTCCACACCCATTTTTGTATT<br>GCTCAAAGGAATAATTTATGTATATCAAGGAAGAGGAGTTTTAATTAATTCAATGT[A/G]TATT<br>TTTTAAGGAGGGACGCTGGTTATGATTGTAACAGGAGGTAAACATACATATGCTAATCACAT<br>TTTTGAGCCAAACAAATTTATAGAAATATCTTAATTACAATTGGATGTAGTTACAATTTTCTAC<br>TGCTATTGTTTTTCCGAAGTAGTGAACAGAGGATTGTGTTGCTGCATAT |
| >Gm09_6<br>112681 | ATGCATTGAAGGAACAACAAAATAACTAGAAAGGTATTGAGTTCAGAATAACCTGTGAAATA<br>AACGTGCATATGGTTCTAGAGCCGGTAATCCAGCAACGAGATGCTCATCCAAAGCTGTTGT<br>TGGAGGAGGAAGTAGGAGTGCCGGGACAGCAGCTGCTGTTAAAGTAGCAGTCTCATA[A/T]<br>CGAGCAACTTCATCATCACAAACACTTAATATAACACCAGCACCATTAGCAACTGCCCATCT<br>TGGAGTTGATGGCACGAGTTGAGGATGCTTCCCAGAACCGCGAGCAGAAACTAAAGAAAA<br>ACAAATTCAGTTAAGAAAAGATTATTATAAATCTTGTCTTTCGAGAATCAAAATGAT |
| >Gm10_3<br>8131569 | CGTGCCATGTCGCGCCTCAACTTTATTATGTGTAATGTGGCTTTTGGCAGTGGGTTGTTCAA<br>GGAGCAGTCAATGTAGATATTGGTGCTAACCCTTCTGCAGAAGGTGGGGATGAGGACGAG<br>GGAGTTGATGATCAAGCTGTCAAAGTAGTTGATATTGTTGACACTTTTAGGCTTCAGG[T/A]A<br>NATGATGGAGGGTTTCTTATTTCTTGTTAACCATGAGTTGATTTCTTCTAAAGAACAAATAAC<br>TTTATTATTTATTTTTATTTTTCAGGAACAACCACCCTTTGATAAGAAACAATTTATTACTTAT<br>ATGAAGAGATATATTAAGTTGCTGACGGCCAAATTAGAGGGTGAGCAGCAA |
| >Gm10_3<br>8131571 | TGCCATGTCGCGCCTCAACTTTATTATGTGTAATGTGGCTTTTGGCAGTGGGTTGTTCAAGG<br>AGCAGTCAATGTAGATATTGGTGCTAACCCTTCTGCAGAAGGTGGGGATGAGGACGAGGG<br>AGTTGATGATCAAGCTGTCAAAGTAGTTGATATTGTTGACACTTTTAGGCTTCAGGNA[A/C]A<br>TGATGGAGGGTTTCTTATTTCTTGTTAACCATGAGTTGATTTCTTCTAAAGAACAAATAACTT<br>TATTATTTATTTTTATTTTTCAGGAACAACCACCCTTTGATAAGAAACAATTTATTACTTATAT<br>GAAGAGATATATTAAGTTGCTGACGGCCAAATTAGAGGGTGAGCAGCAAGA |
| >Gm10_4<br>7783606 | CCCTTTCTTCTTGGTTCTTCCCTATGAATATTGTTTTCTAGAGTTCACAATAGCGTCCATCCT<br>GCTATCTGGTATAATTTTGTAGGGAGGTGGCTCCATGCCACTATAATATAGACTATAGAATA<br>ATTAAACTTTTTTTTTTTATGTATTCATAGTTTTATTCAACTAGTCTCTTCTGGGT[T/G]TGCAGC<br>TAGTGGACCTGGGCATTGCAAGATAAACAATGGAGGTTGTTGGCATGAAGCTAGGAATGGA<br>CATGCATATTCTGCTTGTTCGGTTAGTAATTACTAAGTTCTTGAATGTTGACACTTTACTCTG<br>CATGGTTTGTAAATCTATAATAGAAACTAAATTGTGACATAAATTTTCC |
| >Gm12_3<br>862466 | GGTGGTGTAAATCAAGAAGGAATCAATTATTACAACAACCTCATCAATGAGCTATTGGCTAA<br>TGGTCACAACTCACTATTCAAAACTCTGTTTTTTAATTACATTTAAATTTTAGCATTTTAATTA<br>TTAAGTGTTGTCAACAAAAATTAATCAAATATTGTTTGTCATTGAGACAATTAC[T/A]GGTGTA<br>CTGCCATATGTGACTCTTTTTCATTGGGATCTTCCCCAAGCTTTGGAAGATGAGTATGGTGG<br>TTTCTTAAGCTCCCATATAGTGTGAGTCTCCATTTCATAACTATCCAGCAAATTTAATGTTTT<br>TCTCATCATCAGTAGATGTTAGATTGTTAGTTTTTACTAAAAATGTTC |
| >Gm12_3<br>8459068 | TTGGATGGAGTGAAGAAAGAGAGAGAAGCAATTCGGTCCAAAATCAAGCAAATTGATGATG<br>CACTGAAAGCCATAGACAAGGATATCCAGTCTCTACAGGAGGAACTGACAGCTGTTTCTCA<br>GAAGAGGGACAAAGCTTTTGAGAGTATACAGCAGCTAAGAAAACAGCGCGAGGAGGGG[A/<br>G]TATGTTTCACTTTAAAGTATGAGCAGTGCAGTGTGATATTTTAAGGGTGTGCTTGGTCGA<br>ATAGGTGGAAAATGAAAATGAGGAATACAGGGAATGCAAAATGGAGTGAGATGGAATGCAA<br>CATATGTTTTTGATTTTCATCTGGTGTTAGGCTGAGAAGGTGGAGAATGGGGAGGTTT |
| >Gm13_3 | AGTGATCAAATGAATAGTGAAACTCTGATTCTGATTGGAGAGTGATACCAAAAGTAATTAAA |

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| 5524268 | GAAACTTCTGGCTCTAAGTATTGTGCTTTTTTTATTTGTGAGGCATTTTGGTTATTGCATTAT<br>GTGTTATGCTGTAATGCATGCAGGCTGCAAGGAATGCTGGCGTGCCAGTAGTGTT[T/A]GAT<br>GCGGGGGGCATGGATGGGCCCCTTCCACCACAATTATTGAATTTTGTTGATATTCTGAGTC<br>CTAATGAAACTGAACTTGCTCGCCTTACCGGAATGCCAACAGAAAGTTTTGAAGAGATTGC<br>ACAGGCTGCTTTGAAATGCCATGAATTGGTCAGTTCAAGTAATGACTTTAGGGG |
| >Gm13_35617464 | GTGATAATTGCTGCACGGAGCAACAACGAGATGGATGCATCCAAACTGAAGAACGAGTTCC<br>CTGAGCTTCTTTCCATCAAGGAATCACTGATCAAGTATGTCTTTGAGCCAAACAAGAAAACT<br>GCTTAAATATATTAAAGCGGTTTCATGTTTTAGACATCACAGATTATGCATTTTTGT[G/T]GCG<br>GGCTACATAGATCACTCATTATTTCATTGTTATTTTGTTGGGTTTTGATAAGAACCATACTAC<br>AAAAGCTAGCCATGTAGTTCTTGTTCTCTTAGCTATAAGCGATTCCTGTTTCAGCATATTTCC<br>ATTATATTACCGTGTTTAGAGGGTGACAAGTATTATAACTGGGCCAGATA |
| >Gm13_35823484 | AGCCTCGTCCCCGACGTCATCGATCTCAGACCTCAAAAAAACTCAAAAGGGTCCTCCTCAA<br>ACCTCCCAAAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAAATAGCCTTCTGG<br>GTCGGTCACAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTTGTGTTATAAG[A/G]<br>AGAATGTGGAGGAGATGGTTGGAAGTGNCAAAGTCAGCACATTTGGTGNATTTGGGAAGT<br>GGGTTTGTAGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTCGGAGAAATGGGAA<br>ATGGTTTTGATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGGAGGAGAAGAAGAAG |
| >Gm13_35823512 | GACCTCAAAAAAACTCAAAAGGGTCCTCCTCAAACCTCCCAAAGAACACAACTTTGGACCA<br>GATTCGATCCAACAAAGTTAAATAGCCTTCTGGGTCGGTCACAAATTGAAAAGGGTGTGTG<br>TGTGTTAGAAGAAGAAGGTTGTGTTATAAGNAGAATGTGGAGGAGATGGTTGGAAGTG[G/A<br>]CAAAGTCAGCACATTTGGTGNATTTGGGAAGTGGGTTTGTAGCCGGAGAGTGATCGGAGA<br>TCGGAGGAGATCTGGGTCGGAGAAATGGGAAATGGTTTTGATGAGAGTGTGTGTGGATGT<br>GTGTGAGAAAGAAGCGGAGGAGAAGAAGAAGAAAAGGAAAAGAGTGAGGAGGAGGAGGC |
| >Gm13_35823533 | GGTCCTCCTCAAACCTCCCAAAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAAA<br>TAGCCTTCTGGGTCGGTCACAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTTGT<br>GTTATAAGNAGAATGTGGAGGAGATGGTTGGAAGTGNCAAAGTCAGCACATTTGGTG[G/A]<br>ATTTGGGAAGTGGGTTTGTAGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTCGGA<br>GAAATGGGAAATGGTTTTGATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGGAGGA<br>GAAGAAGAAGAAAAGGAAAAGAGTGAGGAGGAGGAGGCACTTGATTAGCCAAATTTGCG |
| >Gm13_35823811 | GTGTGTGAGAAAGAAGCGGAGGAGAAGAAGAAGAAAAGGAAAAGAGTGAGGAGGAGGAG<br>GCACTTGATTAGCCAAATTTGCGGATCAAATTCATGATCACGGCGTTTGGATTTGTATAGAG<br>AGAGAAAGAGGGAGTGGGTGTTGGAGATTTTAGAATCCAAAAAACATGCCGCCGCCGCC[A<br>/G]CCACCACCACCAGCCTAACCTTTCCCCCCCTCACTTTCTCTCCCCCTCTTCCTTGCTTAT<br>GTCAGTGAGTGTTGATTTGTGAGAGAGCCTTCACAGTTCACACTTGTGTTGTGGAGTATCA<br>CTCTGTGACGACTTTGATTTGGTTTTCCTTTTTGGTTTTTCTATTCTTTTTCTGAATT |
| >Gm13_35835159 | TAGTTGCCGTACATTCGCAGGCCGGAGAAGATCTTCGCCGCGATGGCTCTCCTCCTCCTCT<br>CTCGCCTCTTGTTGTTCTCCCGCTCCTTCCACGTTGGCTGCCTCGCGACGGACGTCATCCT<br>CTTCTCGCCGGAAAAATCAAAGAAGCTCCGAAAAGAACAAAGGAACAAAAAAAGAAAC[A/G]<br>CACACACGCGAACACGAATGTTAGAAAGAAACACAGCACACAGCGCGAGTAAGCGAATTAT<br>AGAGGAAACGACATCCTTTCTGCTTTTTTTATATAAGGTGAGCTAAAACGACGACGTCGGAT<br>TTGAGAGATTTGGGATTGTGATCTGAGTAGATCTAGGCGAGGGAGGTTGGGTGGTG |
| >Gm13_35862124 | ACTAATTAATGTCTTATGCTACCAAAGCACTCATACAATCACTAACAATGACGAACACTCAA<br>AATCACTAGTCTTAATTAAAACATCTATCAAATATGTTTTCTGAAACTTTGCAATTTCTAATTC<br>TCTAATTGCCCAATTTCTTTGCCGCGTTAGCTTCAACCCTAGCCTCGTCATTTC[T/A]TTTGC<br>TTCCGTTGTTACCATTCGGCATTTTTTGAACCACCTCATTATGTTGTCCACCTTTCCCCTGG<br>CTGATGGGTGACCNTCTTTTCCCTCCAACGCTTCCATGGCTGGGGCCTGACCCTCTTGTTC<br>CTCCGTGCGTTCTCACTCTAAACAACAATAACGTCAGTTCTTAATTCATAT |
| >Gm13_35862205 | AACATCTATCAAATATGTTTTCTGAAACTTTGCAATTTCTAATTCTCTAATTGCCCAATTTCTT<br>TGCCGCGTTAGCTTCAACCCTAGCCTCGTCATTTCNTTTGCTTCCGTTGTTACCATTCGGCA<br>TTTTTTGAACCACCTCATTATGTTGTCCACCTTTCCCCTGGCTGATGGGTGACC[C/T]TCTTT<br>TCCCTCCAACGCTTCCATGGCTGGGGCCTGACCCTCTTGTTCCTCCGTGCGTTCTCACTCT<br>AAACAACAATAACGTCAGTTCTTAATTCATATTTCATTTTATATATATATGCAGAACATCTAG<br>CTAAGGCTGAATGAGATTTATGCATGTAAAGAGTGTTTAACTTGATCACT |
| >Gm13_39517326 | GTAAGAGACAATGTGTGTTCTACAAAAAGGTCATCTGCCTTTCGTTTGAACTTTGGGTGTTC<br>CTTCTGTTGTAGGACAAAGACAATATCCCCTGTGACTGTATCAGGCTGCAAAACAAAAAATA<br>GCTCAAAAAATAGTTTTCCATAATCTGGTACAGTGTCAGCATCAAAGCTCAACATA[C/G]CGC<br>TTCATCAGCTTCACCAGGGAATGTAATCTTCTGTCCATTCTGCATTCCCTTCTCCACAACAA |

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| | CTTCAAGTACTTTCTTCTCCTGAACAACCTTCTCTCCCTTGCACTGTTGGCACCTGTCTCTG<br>TCATTGATTGTCTCTCCAGTACCCTTACACTCATTGCAAGGATGCTGCATTT |
| >Gm14_28088505 | ATTGTAGTTGTTACTTCACTCTAAAATGCCAGCAAGCATTTTTGCTTCTCCTTCATCAAGCAG<br>TGATTTCATTTTATTTCTATTAAGATAGCTATAGCATTCTGATATCTGTTTGCTACTTTGCTCT<br>GAAGTCTAACATAATTTTTTCAGCTAAACATTTTTTTCCTCTTTCATTCTCTA[A/C]AGAATACA<br>AGATCATCTCAAGAATTCCCAAACCAATCTGCACAAGGAGGATCAAGAAGCCATGGCGAGC<br>CACCTCCATTTTCCTCTATGCCGTTTAACCCCCGTGATATTGCAAGCATGTTCATGAACTTC<br>ACGAACGCTACAAATGCACAGCAGCAGGGGTCACATTCTCAGGAAAGG |
| >Gm15_3100509 | CATGAATAGTAATGGTTACTATTTTCTGAGACACTCAAAGGAGATCTTGACAAATTCAAGCC<br>ACCGTTATATTCCATTTTAACCCGTGCTGGGAGCTGAGTAGCCCTAGAACTTGCGGCAATA<br>TCTCCAACCAAACCTTCAACACTTTCACTTTGAAAAGGGTAGGAATTAGAAACAGCT[A/G]AA<br>GTTGACTCAAAACCATTCAAGAAAGGAAACTGCTGGAACCGCCACTGCTCCACTCCTCCTC<br>CTGCAGTAGCAACACTTGAAGTACCATTGCCATGACCTCCAATTTGAAACCCCATTTGAGAA<br>CCGTTCTGTGCTTGAATCTCACGCAAGTTAACACCTGTATTCCCTACACCATAG |
| >Gm16_30464934 | TCTCTCCCTCCTCATGAGGAGAAAAAAGAAGCTTTCAACTTTCCTATTATTCATCCAACACC<br>ATCTCAAAATCGAAAGGAACAAGCTTCACCATCATCATCACCCTTTTCACTCCTCATGAGTA<br>CCAACCAAAACACCACCTTCTTCCCCCTCCCACATGGCCAAATAACTACTTCTGAA[T/C]TTG<br>TTAATAGCCAGAACAATCCATCCCAGGCTACAAATCAAGGTAAACTATATATTATTGCCAGG<br>TTGATTATATATCATATTATTCTAATAATTCATATTACCATCGATGTTATTATATGGTCCTCTC<br>AATTATATATATATCATATCATATCATATCAATAATCTGGATCCACATCT |
| >Gm16_30479527 | GCGTGGAAAGCCAGTGTTCATCAGGCGCCGAACCGAGGATGATATCAAGCTGGCAAACAG<br>TGTTGATGTTGGATCTCTTCGCGATCCCCAGCTGGATGCTGATAGAGTCAAGGACCCAGAA<br>TGGCTCATTGTGATTGGGGTTTGCACCCATTTGGGTTGCATTCCATTGCCAAATGCTGG[T/A<br>]GACTTTGGGGGATGGTTTTGCCCTTGCCATGGATCACATTATGATATTTCAGGCAGAATTA<br>GGAAGGGGCCAGCACCATACAATCTGGAGGTTCCTACTTACACCTTCTTGGAAGAAAACAA<br>GTTGATGATTGGTTGAAAATAAATATGGTTCTGCATACAAGCGGAATGAGTTTACAA |
| >Gm16_30539483 | GGTTTGCGGAAACTGCCAGACTGTGTTGTGCCAACCAACAGGCGGACGGGCAAGGTTAAC<br>CGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAATGGTTTGTTAACCAGACTTTTCTTTGT<br>CAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGAAATGGAATCCATTTCCGTTATGG[T/C]AT<br>ATTAATTTTGTTAAATTGTAAGACAATATCTCNNTCAGCCTTCCACAAGACATAGTAGCCAAT<br>GTTGAATTTTTCTTTATTAAAGTGGATGTGGTTTTGTTCGACAACATTTACTAAAATCAATAT<br>GGTTTAGTTTGATGGTTATTTTTACAATAACATGTTTTGTATGCTCTGATG |
| >Gm16_30539518 | CAACAGGCGGACGGGCAAGGTTAACCGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAA<br>TGGTTTGTTAACCAGACTTTTCTTTGTCAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGAA<br>ATGGAATCCATTTCCGTTATGGNATATTAATTTTGTTAAATTGTAAGACAATATCTC[T/A]NTC<br>AGCCTTCCACAAGACATAGTAGCCAATGTTGAATTTTTCTTTATTAAAGTGGATGTGGTTTTG<br>TTCGACAACATTTACTAAAATCAATATGGTTTAGTTTGATGGTTATTTTTACAATAACATGTTT<br>TGTATGCTCTGATGACGTGTTAGTGTCAATAATGTACATATGAATTTTG |
| >Gm16_30539519 | AACAGGCGGACGGGCAAGGTTAACCGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAAT<br>GGTTTGTTAACCAGACTTTTCTTTGTCAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGAAA<br>TGGAATCCATTTCCGTTATGGNATATTAATTTTGTTAAATTGTAAGACAATATCTCN[C/G]TCA<br>GCCTTCCACAAGACATAGTAGCCAATGTTGAATTTTTCTTTATTAAAGTGGATGTGGTTTTGT<br>TCGACAACATTTACTAAAATCAATATGGTTTAGTTTGATGGTTATTTTTACAATAACATGTTTT<br>GTATGCTCTGATGACGTGTTAGTGTCAATAATGTACATATGAATTTTGA |
| >Gm16_30626524 | TATAATGAGGATGGTGTCAGGGAAGAGGTACTATGGTGAAGACTGTGATGTGAGTGATGTA<br>CAGGAAGCAAGGCAATTTAGAGAGATCATTAAAGAGTTGGTGACGTTAGGAGGGGCTAATA<br>ACCCTGGGGACTTCTTGGCTTTGCTTAGGTGGTTTGATTTTGATGGTTTGGAGAAGAG[A/G]<br>CTAAAGAGGATTAGTAAGAGAACCGATGCGTTTTTACAAGGACTCATTGATCAGCATCGTAA<br>TGGAAAGCATCGTGCCAATACTATGATAGATCATCTTCTTGCTCAACAGCAATCACAACCTG<br>AATATTACACCGATCAAATCATCAAAGGACTTGCACTGGTAATTAATTAATTATT |
| >Gm16_31191863 | CAACCCCAATCCAGTGATGCAGCTCATCTCCCCTGCATCCTCCACTGGTGAGAACACGCAG<br>CACAACGCTGCCAACACCTCCAAGGCATCATCGGATTCCGAGAATTTCGCTGAGTCGGTGA<br>TCAAGGCTCCTAAGCAGGCCTCTGGGGAGCACAAGAAGAAAAAGAAGATCAAAGTGAC[G/<br>T]TTCCCATCAGGTCAAGAGCGGAATGCACCATCACAGGCAATTAGGAAATGCTTGCACTGT<br>GAGATAACCAAGACACCACAGTGGAGGGCAGGGCCAATGGGGCCGAAAACACTCTGCAAT<br>GCTTGTGGCGTGCGCTACAAGTCAGGCCGGCTTTTCCCCGAATATCGCCCTGCAGCGAG |
| >Gm16_3 | ATGTACTACCAAGCAAGGGGTCACATGCCACCTAAGTTCGAATTTCATATTTTCCAGGAATC |

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| 1204160 | AAATTGTTAGTGATTGATATTTTTAGTGGTCAAAATGAATATTTAAAATAAAAATAAAAATAAA<br>AGTGAAAAGGAAAGCATGAGATAGATAATAGAGGAAACAACGTGAGAGTTCCAC[A/C]GGA<br>GTAAAGTAAAAGCTTTTGTAGATTCAGAAACCCTCACTTGTTGTTGGTGTGGTTGTGTTTTT<br>GCATGCTTCGGACATGTCGATGGCGATGGTCCACCCTTCGGTTCACCCAATCGAAGCCCC<br>ACCCATGACTGAGCATGCAATTGCAATTGCAATGCCCAGACACACTCTGAAGGA |
| >Gm16_3<br>1204451 | CCCAATCGAAGCCCCACCCATGACTGAGCATGCAATTGCAATTGCAATGCCCAGACACACT<br>CTGAAGGATACGCAGGGCATGCCCGGCACCCTCGGTGGCTTCCTCTTGCGCTTCGCCCAG<br>TTCTCTTTCGCCCTCGTTTCCCTCTCCGTCATGGCTACCACCTCCGATTTCCCTTCTGT[C/T]<br>ACTGCCTTCCGGTATTCATTAATTCCCCCCTTTCCTTATTTTCTGTTTAATCGTGCTTATTTTT<br>AATTGGGTTTGTGGTAATTGTTGATTTGGGCTTGTTTTTTGTGTTCAAAATCAGCACCCCAG<br>ATTTTATTTTTTTTCAAGTGGGTTTTATCAAGGGAGCAATGAAATGAACTCTT |
| >Gm16_3<br>1225684 | TAACAAAACAGATCATATATCTGCCATTATTCTAAAACAGAAAAGGATAGTTAAAATAAAGAA<br>TACAAGGTTACTCCAGAATAACGATGTAGTAAAAGGAAAGTATAATGTACAAAGGTTTCTAA<br>ACAATACAATATGGTGAAACAAATAGGATACCTGCATAATTTCAGGTGCATCAGG[C/T]CCA<br>CACATTGAGGCTCCGAGAACCTTATCTGTCTCAGCATCAACAACAAGCTTCATAACAGTTTT<br>TTCTTGTCGCCTATTTGAAGAATATCAGCAACCATAATCTAGATAAGAAAGTTATGCTGCAA<br>AGAACATAACTAATACTGGGTCCAACTGAGATTGAAGAGCATGTGATGATAA |
| >Gm16_3<br>1461554 | TGCAGAAAATGAAGGAAGATGTCATGCTGTTGCAACCTGCTTAACCAGGAAATTATCTCTTC<br>CACCCTCTACATTTCACTCTTTTCTTGCACCATCATCATCCTCCAAAGTGACCCCACAACCT<br>ACTGGTTCAAGTAACAACTTGATACCTGGTACACCGCGGCTTGTACGAAGCCGTGC[C/T]GT<br>GACAAGGGACAGAGTAAGAAACTGGAATTTTGATGAAATTGCAATGGAGTCCTAGTCTAAA<br>CTATAAGATAGAATAAGACTAGGGAATTTTCTTGTGGGATAGTTTATAGCATGTTATTGCTAT<br>TTTGCCCCTTTGAATTTTGTTATGGGTGCAATTTATCTCTTTCTCTAGTTTTC |
| >Gm16_3<br>1475163 | TATAAGTGTTGTTTTCAAATATTAAGGAGTTGTGGGGTGCGAGCGTGATTTTCTCGTTATAA<br>AAATAAGAAGGAAGAGTGATTCAAATCTGAAGCTGAACCCTAACTAGCTGAGCAGACGGAG<br>GAGAACTCGACTGAAGCTGCCTCTGCGACGCCGTTTCGATTCAGCCTCAGACATTTC[T/C]G<br>TAAGTTCATCGTTTCACACTTTACACAAATACCCTATTCTTCGCATACTTCGTCGCTGCAACC<br>CCGAACAACGATAACCTAATCAATTTGGCTTCGCCCCCTCTTTTTCTCTTCACAAACAATAA<br>CAATTCACGTGTGATTGATTTCTCCAGTGTTTTACGAGTTTCAAAGATGCTCG |
| >Gm16_3<br>1476359 | CATTTATCAAAAGCCCAGGTTAGCAATGCAAAACAGTGAAAGTGTCTGCTTGCTGCTGTAG<br>GTTGCAGTCATGGTGCAAGAAAATGGCAAGAGGAAGAAACCAAACATTCTGGTGACTGGCA<br>CACCGGGGACAGGAAAGACAACTGTGTGCACTGCTCTAGCTGAAGCCACCCAGCTCTG[T/<br>C]CACATCAATGTCGGAGAATTAGTCAAAGAAAAGAACTTGCATGATGGATGGGATGATGAG<br>CTTGATTGTTACCTTCTTAATGAAGACTTGGTAAGCTATCAATTTATATAATTTGGATCATTC<br>CTATATGCTTGTGTTTGAGATTTAGCTCCTCTAAAGTAAAATGAGGAGATGTGTAA |
| >Gm16_3<br>1827645 | GCATGTGTTGCAACTTGTTTACTAGCAACTCTTTCTGTATAAATACCATATACACACAATGAA<br>ATGAAAAGCTTGAGTTTCTTTCTTTCAATTATTCTAACAGAGGGTCGATCTAAAGTATTTATG<br>GGAAGATCATGATTAGGGCATTTATTTCCTTAATAAGCAAGAGAAAATGGACAA[A/G]ATAGA<br>AGCACATAATACTGAACACTTTATCCTTATTACATGAGTCATATGTCAAACAGGAAACAACA<br>ATCCCCAAAATAGAACACACCCATATCCTTAGCAATTAAACAACACCACACAAGAAGAACTA<br>CACATAACTTACAAACTTTTGCTCCATTCAAAACTGATCAACCAATTGCA |
| >Gm16_3<br>1827884 | GAAACAACAATCCCCAAAATAGAACACACCCATATCCTTAGCAATTAAACAACACCACACAA<br>GAAGAACTACACATAACTTACAAACTTTTGCTCCATTCAAAACTGATCAACCAATTGCACCA<br>CCTCTTCCACCACAGACGTCAACAAAGACTTCCTAGCATTCACCACATTGCACTTG[C/G]CA<br>CGAATTTCACCTTGATTTCCAGTGAGCACATCCAATTGACTCAACTTTATAGTAGCATCCAC<br>AAACTTCTCAAAGAACAACGTTTGGTTCAACGCAAATGCATTNACCAACCCCTTAGTCCTCT<br>TATCATTGAGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGGTTCATTAGG |
| >Gm16_3<br>1827991 | ATCAACCAATTGCACCACCTCTTCCACCACAGACGTCAACAAAGACTTCCTAGCATTCACCA<br>CATTGCACTTGNCACGAATTTCACCTTGATTTCCAGTGAGCACATCCAATTGACTCAACTTT<br>ATAGTAGCATCCACAAACTTCTCAAAGAACAACGTTTGGTTCAACGCAAATGCATT[G/C]ACC<br>AACCCCTTAGTCCTCTTATCATTGAGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGGT<br>TCATTAGGTCAAGGTAGTATTTGTTGTCGAACACAGTCGGGGTTCTGATGTCCAAGTTGAC<br>GGTGTTGCCGGAGTTTGCGTNGGGGCAAGTGGATTGTAGTTGCTTGGCTAGGGT |
| >Gm16_3<br>1828137 | CAAAGAACAACGTTTGGTTCAACGCAAATGCATTNACCAACCCCTTAGTCCTCTTATCATTG<br>AGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGGTTCATTAGGTCAAGGTAGTATTTGT<br>TGTCGAACACAGTCGGGGTTCTGATGTCCAAGTTGACGGTGTTGCCGGAGTTTGCGT[C/T]<br>GGGGCAAGTGGATTGTAGTTGCTTGGCTAGGGTTTTGTCCATGTTGGGGTCGAGAGGGGA |

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| | GAGCCTGTTGAAGAATGTGCCGCAATGGGCACGACCAAAGGTGTGTGCGCCGGATAAGGC<br>GACAACGTCGGTGACATCAAAGTTTTTGGCGGCGAAAGCGTCAAGGGTCACGCCGGTGG |
| >Gm16_31829738 | ATATCACAAAGAAAAGCTTCAAAACTATAGTTAGTAAGAGCAGAGGGTTTTGAGAACCAAAA<br>TAGTAGTGCAAGTAAAGGTAAGAGGGATGAAGAGATTACAAGGAAAACTGAATCACGTGCT<br>GCCAAAACAGTGATATCTGCGCAAGAAACGATCCTTCCACACTCCTTATGGATAATA[G/C]C<br>TCTGATGTCATCAATGGTTTGCAAGGCCTCAGTTCTGATGCCTCCGTTGGCTGGTTGGTCT<br>CTTTCACTTGGACTCCCATCTAGCAGCAATGATCCATCACATCCCTATACAAATGCAAATTA<br>AGTTAGAGGTAATATCTTTTTTCTATATATATATATGCATGCATATATATTAACC |
| >Gm16_31840753 | GTTGGGGGACTCGGCATTGGGACACGTAGCTATCAAATTGTTGTTGAAGTTTGGGTCGATT<br>GGTGGGTCCGTTTCGATGGTTCTGTTCACTAGGGAGGGACAGTGGGCACGACCGTAGGTG<br>TGTGCGCCGGAGAGAGCGACCACATCGGTGGCATCGAAACCTCTATTTCCGAATCCTCT[C/<br>G]AGAAGATCGTCGGTTCGGAAGAATGGTGCCGGTAGGTTGTCCGGCGCGGTGGCGTTTG<br>GTCCTAGNCCGTCTTTTCTTCCCAGTGGCACGTCAAAATCAGGGCCTCCTAACTGTTCAAAT<br>TACAAAGAAGTTACCAAAAGGAACAAACGAGAGATCAAGCATTATGTTTAAATGTGTTTT |
| >Gm16_31840819 | GTCCGTTTCGATGGTTCTGTTCACTAGGGAGGGACAGTGGGCACGACCGTAGGTGTGTGC<br>GCCGGAGAGAGCGACCACATCGGTGGCATCGAAACCTCTATTTCCGAATCCTCTNAGAAG<br>ATCGTCGGTTCGGAAGAATGGTGCCGGTAGGTTGTCCGGCGCGGTGGCGTTTGGTCCTAG<br>[G/A]CCGTCTTTTCTTCCCAGTGGCACGTCAAAATCAGGGCCTCCTAACTGTTCAAATTACA<br>AAGAAGTTACCAAAAGGAACAAACGAGAGATCAAGCATTATGTTTAAATGTGTTTTTAATCT<br>CATTATAATGTTATAATTTGAGTGAAAATTATCTCTAATTTATATATTATAAATGATTT |
| >Gm16_31842815 | GAGCTACTCCACTGTCCTTCTCGAAGACATCCTCAAGATGCTTCCTTATAATCCTCTCAAGC<br>TTGGGACATGTCAACAAATAGTAATTCCATGATAGTCCAGGGACTAGTTTCCCAGAGGAAA<br>CATGGATTTGAGAAGCCAATACAAGGGAAGAAATCAAGAGCAAAGAGTGAAACAAAG[G/C]<br>ACTAACCCTAGCCATGTTTGATTAATTTGCTATGAGTGTGACTTGAGATAACCAAAACTTAG<br>AAGAGTTATTTATAGATTCAATATTGAGGTAACGTTCTTCGGTTGCTTCCCACTTCCCACCC<br>ACTAGTCTTCTACGTATAATATTTAAAACGTGGCGCAAGCGTTTTTTGAGATTTG |

**Supplemental Table S2**. SNPs identified by Method 2 on the single-library comparison

This table contains 255 SNPs identified using Method 2 on the single-library RNA-Seq comparison between the Clark/IsoClark 10-day root experimental data. The file contains a unique SNP identifier that includes the genomic location. The sequence surrounding each SNP based on the soybean Glyma1.01 genome assembly is also provided.

| SNP | [Clark/IsoClark] |
|---|---|
| >Gm01_2205875 | TGTTATGCCTAACATTCACAACCTTCTTCTTCCCAAGAAGGCTGGGGGCTCATCCAAGGG<br>TGCTGCTGCTGACGATGACTCTTAAATAGGGATTCACTGTTCACAAAGTTCTTGAATTTAG<br>ATTCTATGTTTGCTCTCTTTTTTTTTTCCTTTTTATTTGTAGTTATGATAATTGTGCC[A/C]TT<br>TGTAGTAGTAGTTAGGTTTTCAGTCAGATGTGTTTAAAGAATGCTCTTACGCATCAAGAAA<br>GGTTGTTCAAAATTTAAATTATTTTAATGTCACCTTTGAGTCTTGATCTAGCATTTGATTTCT<br>AATTGCATTCTATCAAACTTTAATTTAAACTGTTTGATTAGGCTTTGAGAGATT |
| >Gm01_6704379 | TTTGTTTTGTGTTTGATTTTTTTTTCCTTTCTTTTCTTTGCTGTGAAATTTACCTCATTTCATG<br>ACCCACCCCTTTTACTTTTTTGGGGTCTTAGCATTAACCTCTGTGTTGTGCTGTGCTGTGC<br>TGTGTGTTAGACTGTTAGCACCTTTTTCCATAGGCAAAATCATGTGTTACTCTC[T/C]CAAG<br>CCACTCACTGCAATAACAGTTGTTTGTTTGGTTCTGCTTTTGTTAATTGCCAACAAACAATC<br>ACTTAAAAGCTTGCTCAGGAAAAACGCATACAACGCATTCTCTCTCTTCACTCTCTCTTTCT<br>CTCTCGTACTTCATCGTATATTTAATGAATAAATTTGTAGTAGTAATAAATT |
| >Gm01_50660171 | AGCAAGTTTTTGAAGTGCACGATGTGGGAGTGAACCTGCTACTGCTAGTTGATGCATGTT<br>TCCTATGAGAGGTAGCTTTTTTGGACCAGGGGGAAGTTTGTGAGCAACATTAGGTTTTAG<br>CTTGAGATATTTTGCAAGCCAATTCAGTAGAATGAAGAGGGATAAGGCAATAACCAAGA[G/<br>A]GTAGGTTTGAGCTTCCATATATGGCTTTATTATAGAGTCAGCTCTCAAGGGTTTTATTGT<br>TGTTTGTCGATGGCTGGTTCGGTTCCTATTTATAGAATCTTCAATCCGCAAGGAAATTTCG<br>ATCTATCTATCATTTTTAAACCACTCAACGTACTCTTATATTCTTTTCAAATATCACTT |
| >Gm01_50660172 | GCAAGTTTTTGAAGTGCACGATGTGGGAGTGAACCTGCTACTGCTAGTTGATGCATGTTT<br>CCTATGAGAGGTAGCTTTTTTGGACCAGGGGGAAGTTTGTGAGCAACATTAGGTTTTAGC<br>TTGAGATATTTTGCAAGCCAATTCAGTAGAATGAAGAGGGATAAGGCAATAACCAAGAA[C/<br>T]TAGGTTTGAGCTTCCATATATGGCTTTATTATAGAGTCAGCTCTCAAGGGTTTTATTGTT<br>GTTTGTCGATGGCTGGTTCGGTTCCTATTTATAGAATCTTCAATCCGCAAGGAAATTTCGA<br>TCTATCTATCATTTTTAAACCACTCAACGTACTCTTATATTCTTTTCAAATATCACTTA |
| >Gm01_53617124 | TATTGATACAAAGTTATATTTTTTCATTTCATTCAAACCTAGCGAACTATGCATCGGTTCCA<br>AAGTTCACATTGGCCCCGACGCAGGCACGCAGCTCAGTTAGCAACAGCGTTTTTTTTTTTT<br>TATCACTTCATTCCCAACCCTAGCGAACTATCAATCGCTCCCAAAGTTCACATTGG[A/T]GC<br>CCGACGCAGTCTCAGTCCGTACCAGCGTTAGTGCCAGCTCCACTGTCGCGTAGGGCTCG<br>GAAAGCTCCGCATTTGGCCATTCGCGCTCTGTAAGTTTCCCTTTCTCTAATTCTCTCTCTC<br>TCTTTCATCAAGCTTTGTTTTGCTTTGGACGTTTTCTCTTTGACCTAAGATCCAAAGT |
| >Gm02_954265 | TGATCAATGAAGAAACTCCAGAAGCCATCAAGGTTGTCCATGCCTGTGGATGCTTTCCCT<br>GGTTTCTTCACCACAATAATGGGAGTCAAGTCTTTTGTCTCTTTTTCTTTCCACATTGGACT<br>CTGTGGCACTAGATCATGGTGACAGCATATTATCAAGGCTTCTAGTAATAGCAAGAT[A/C]<br>GAAGCCATTATTAGTAGACTAGAGATGGGACATTTGATTGGAAGGCTTTGCTAGGAATAG<br>ATGAGAAATATCATATATATATATAAAGTTCTGCCCTTCACCCTTACATGTTTTTAATATCAA<br>AATTTGAAGGGAAACCTTCTTTCTTTTGGAGAAATAAAAAATCTGGATTGCTTATGA |
| >Gm02_6692680 | TCAATCATGTTAGAAAAACTGAAGTCATATCTTCAAAACGATGCTTCTGAATTTCATACACG<br>TTTACCAATTTTAATTCGAAACTTGTGCACAGGTAAGAAACCAAGCAATAGTGAAGTGGAT<br>CAGCTAGTGAATCTTGCAGAAAAATACACTCTTGCAAACCATCTATTTTGGGGCTT[T/C]TG<br>GGGACTTATTTCGGTATGTTTTTTTTTTTTGTTTTTTGGATAAAACATGTTTTTTTATCTCTC<br>AGAATATCTTGAAATTCAGTTTTAGTCTCTATAAACATTAAACCACTAGGGTGGGGTTTGG<br>GTGGTATACATGAAGGCTTAGGTTCGATCCTTAATACAGTATGTTTTTAGTTTC |
| >Gm02_17023049 | TTTCCATTAGATTTAGAGGGACTTGAGAATTTAGTCTTCCTGTTTTCTTTTGGGTAATTGTG<br>TGATTGGTTAATGCTTGCAGTGAGGAGGCTGCAAAGGAAGCTTTGTTGTATAGTTACAAGT<br>CTGCAGCCAGTGGGTTCTCAGCTAAGCTTACTCCGGAGCAGGTTGAACAGATTTCA[G/A] |

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|---|---|
| | GTAAGTCTGATTGTTTTTCAATCTAATTTTTATTATTCATTTCCCCCCAGCTAAACTCCCTG<br>ATGTAATGTAATATGGTTCATTTTTAATTTTTTTTATTTTATCCTTTTGAAATTCCCTGATGC<br>ATTGTGGCTCTTTTATGCTGATTGTTTATGTTTGCATCTAAGCAATATTTGTGTT |
| >Gm02_17023050 | TTCCATTAGATTTAGAGGGACTTGAGAATTTAGTCTTCCTGTTTTCTTTTGGGTAATTGTGT<br>GATTGGTTAATGCTTGCAGTGAGGAGGCTGCAAAGGAAGCTTTGTTGTATAGTTACAAGT<br>CTGCAGCCAGTGGGTTCTCAGCTAAGCTTACTCCGGAGCAGGTTGAACAGATTTCAA[C/T]<br>TAAGTCTGATTGTTTTTCAATCTAATTTTTATTATTCATTTCCCCCCAGCTAAACTCCCTGAT<br>GTAATGTAATATGGTTCATTTTTAATTTTTTTTATTTTATCCTTTTGAAATTCCCTGATGCATT<br>GTGGCTCTTTTATGCTGATTGTTTATGTTTGCATCTAAGCAATATTTGTGTTT |
| >Gm02_42350182 | CGTGGGTGAAAGCGACCACATCGAAGAGCTTTGCCAAGAGCTTGGCGTCGTTGAGGTCG<br>CCATCGACGATGAAGACGTCATGCTTGGCGAGGAGGGACTTGCGGGCTTTTTTCAGAGA<br>CGGATCGTAGTAGTCGTTGAAGTTGTCGAGTCCGACGACGCCGTCTCCGCGTCGTTTTAA<br>C[A/T]CGAGGGAGACGTGGGAGCCGACGAAGCCGGCAGCGCCGGTGACGAGGACGGAC<br>ATGCCGCCTTGACGGTGGATCTGGGCGGAGGTGCGGACCTGCTTCTCCCACTGGATCCC<br>GCCCCAGGAGGCGGAGAGGTAGCGGCTGCCGGAATCAACGAAGCCTTGGAAGCTGAGA<br>TATGAAGCGG |
| >Gm02_44574156 | CTTCTCAATTTCTACACCCTTGTTGTTGTTCTGGTTTTCATAGGCTGAAATGTGCACTCCAA<br>GTGCTGCTCTACCAGAAGGATCAAGGTTGTTAGACCAAGCAGCATCCCACTCAACAGCTT<br>TGGCTGTGCTACATGCAACACTTGCTCCTCCAGGAACGGTGAGCCTAGCTGAGTTCT[A/T]<br>CAAAACCAAATCAGCAAACACTTATTTGAATCAGCCCTTATTGAATTACATATTCCACATTG<br>ACTAGTGATATGGTCAAAATAGTGTATATAAGTCGGGGACAACTCTTATCTTATGAGCTAC<br>CTTTCAGGATTTTGTTTGGCCTAAATCCAAATTGTAAGAAATTAAATTAGGAGTTGG |
| >Gm02_44574157 | TTCTCAATTTCTACACCCTTGTTGTTGTTCTGGTTTTCATAGGCTGAAATGTGCACTCCAAG<br>TGCTGCTCTACCAGAAGGATCAAGGTTGTTAGACCAAGCAGCATCCCACTCAACAGCTTT<br>GGCTGTGCTACATGCAACACTTGCTCCTCCAGGAACGGTGAGCCTAGCTGAGTTCTG[A/G<br>]AAAACCAAATCAGCAAACACTTATTTGAATCAGCCCTTATTGAATTACATATTCCACATTG<br>ACTAGTGATATGGTCAAAATAGTGTATATAAGTCGGGGACAACTCTTATCTTATGAGCTAC<br>CTTTCAGGATTTTGTTTGGCCTAAATCCAAATTGTAAGAAATTAAATTAGGAGTTGGT |
| >Gm02_48476266 | CAGAATCATAGAATCAAACTACGACATGATCTTCAAAGCAAAATTTTGTCCATTTGATACCA<br>AAGCTTTAAACAATGGCATTGGATAGTTCTAGTAGCAAGAAGATAATATCTTTAAGAATGC<br>AGAAGACTTTATAAAGCATCAGTAACCGAGGGAGGTTTGTGACTTATGACAAATGG[G/A]G<br>ACCGAAGAGCTCTGTGTGCTTCCTCCTTCTGCTTGCGTGCCTTGTACATTTCCTCTGTCTC<br>GATAACAACTAACCTCTTGACCTATATTAATTACAAAGCTTACCAATGTCAGTATACAAGGA<br>GACAAGTAATTTCAAGCAGCAAAATGGACTTGGGTAGAGCTTTTGCTAAAACCTGT |
| >Gm03_35154151 | CATTTGGAGAGCAGCTGTGGTTCATAAACCGAGAAACATTTCCTTCATTTTTTGCTGATAT<br>ATAAAGGGGGGATGGGATTTTCGGAGCTTCAGTATCACCAGGAAAAACTTCCAGTTGCTG<br>ATAAATGCGAGTAGAATCAAAAATGTAATCATCTTCATTGTCACCACCAAGCTCCTCC[A/C]<br>CTCTAGCACTATCTATGACTTCCCCTGCATACTCACATATGAAAGTTCCTGCACGAATAGA<br>ATCCCATGATCTAAGACCCCAACCTTTATTCTTGGTTCTGAAAACCTCCAAACGAAATTTC<br>AAGCCACTTTGAGAAACCCGATTTCGGCAATTAGAAGGACATTGACAAGAAGGGCCAC |
| >Gm03_36460374 | GACATTGCAAATTAAAATTTTCCATACAAGTTTCCTCAATCCTAATATAGTGATAGTGATAA<br>ATAGAACTAAGACAACAAATTAGTACTAGGCTCTGTCAATCTTCATAGGCCAATACTTTTAC<br>CACTCTTTAATAACTTATGACCCGATATTTGAAGGTGAGGATAACAATTGTAACA[T/C]GAA<br>AATTACAGGAAATACGGATTTTATTACATGCACGTAAGAAACACATCAAATTTCCACTCTCA<br>AGAATCCAAAGAAAAGATAACAATGCATGCTCTCAAATCCTCAACATGCTAACTAACATCT<br>TGCCAATGCAACTTCCTAAGGATGAATATTTAGACAAAAAAAAACATTAAAGAG |
| >Gm03_36554101 | ACCCATGTCTAGATGCACTATGGGCATCAGTGACATCAATCGCTCTTTGATGTGAACTCTC<br>GTCCACTCTACAACCACCAATTATCATAGGTGAAGTCATTTTGTACATGAAAGTTAAAAAAT<br>AAGATGTTAGGCCGATTTTATTTAATGTAATTGTGTGTAATAAAATACATATAAAT[G/A]CAA<br>ATACATTTAATATACTTTTTGTTATTCCCTAAAAATTTATTGAAAGATCTAATATTAGACCTA<br>ACATATTCATTTAAGATGTCATCAAACAATGATTTAATTAATTTAAATATAGATAAAATTGAG<br>AATTTTTTAAAATAGAAGGATCAAATATATTTATTTTAAAATAGAGAGACC |
| >Gm03_36559131 | CATTCCAGCTACAGTTTCGCGAGTTTTAAAATACATACCTGAGTTACAACATCAAGTGCAA<br>GCACTAACTAAGAAAAAAGAGGAGCTTCTGTGCAGAATTTCAAAAAATCTCAAAGGAGATT<br>CGGTGAACAAAGAATCTCAAAGGAGAATTTCCCATCACAATTCTGATTTTGCTGTTT[C/T]A<br>ACTAGTAGGCTCAACGATTGTGAAGCTGTTGTTCACATTTCCTCTTATGAGGCTCACAAGG<br>CTCCACTATCCGACATCTTGCAATGTTTAGAAAATAATGGCCTTTATTTGCTAAATGCTTCT |

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| | TCCTCTGAAACTTTTGGAGGAAGGGTCTTCTACAACTTGCATTTCCAGGTATCTTT |
| >Gm03_36559857 | TGTTTCTGCAGGTGGAAAAAACTCATAGATTAGAGTCCGAAATTCTAACTGAGAAGCTTTT<br>GTCAATATATGAGAAGCAAAGGATTTTCTAATCAAACGATCTTAAGTGCTCTGATGTTAAAT<br>TTGACACCTAAAAGAGTCTTCACATATTTGTCATGCATGAATGGCAAGTTCGGAAA[A/T]TA<br>GAATGGAGTAATCACATCACATGCCGCTTCTATATACATATGATTTGGTAAAAAAGCAAGT<br>GGCCGGCAGGAAGGTGCATGGATTTTAGGAGGAGTTAAAGAAAAGAATATTGTATAAACA<br>TAAATGTTACAATCAGCCTCACGTAGCAAAGTGTGACACCCTCTTTTCTCACAAATA |
| >Gm03_36559926 | ATGAGAAGCAAAGGATTTTCTAATCAAACGATCTTAAGTGCTCTGATGTTAAATTTGACAC<br>CTAAAAGAGTCTTCACATATTTGTCATGCATGAATGGCAAGTTCGGAAATTAGAATGGAGT<br>AATCACATCACATGCCGCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGCCG[A/T]C<br>AGGAAGGTGCATGGATTTTAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAATGTT<br>ACAATCAGCCTCACGTAGCAAAGTGTGACACCCTCTTTTCTCACAAATATATGTACTAATA<br>ATGAAAGGAATAGAAAGTTAGAATTAATGAAAAGTTTTAAAACACATTTAAATAAAA |
| >Gm03_36560002 | CATATTTGTCATGCATGAATGGCAAGTTCGGAAATTAGAATGGAGTAATCACATCACATGC<br>CGCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGCCGGCAGGAAGGTGCATGGAT<br>TTTAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAATGTTACAATCAGCCTCA[A/G]<br>GTAGCAAAGTGTGACACCCTCTTTTCTCACAAATATATGTACTAATAATGAAAGGAATAGA<br>AAGTTAGAATTAATGAAAAGTTTTAAAACACATTTAAATAAAAGCATTTCAAAAAGGATAAA<br>AGGTTTACATTCGTTTTTCTAGCATTCTAATAAAACTTATTTAAATAAATAATAAAA |
| >Gm03_36560077 | TATGATTTGGTAAAAAAGCAAGTGGCCGGCAGGAAGGTGCATGGATTTTAGGAGGAGTTA<br>AAGAAAAGAATATTGTATAAACATAAATGTTACAATCAGCCTCACGTAGCAAAGTGTGACA<br>CCCTCTTTTCTCACAAATATATGTACTAATAATGAAAGGAATAGAAAGTTAGAATTAA[G/A]<br>GAAAAGTTTTAAAACACATTTAAATAAAAGCATTTCAAAAAGGATAAAAGGTTTACATTCGT<br>TTTTCTAGCATTCTAATAAAACTTATTTAAATAAATAATAAAATCATCTTCACTCAAAATCAG<br>GTCGTCCAAACTGAATGAAAAGAAGTCAAACTAATAGTAGAAAACATAAAATAAC |
| >Gm03_36952394 | AAAAGAAATAAAAAAAAATAAGATCTGTTTTTTTTTTTTTTTGAGAAAGATCATTTTTTATTAT<br>TATTGTTTTGAATTTTGAGAATTATGTAATGATGAGAGGTTGATGTTGTGAAAAAAAAAAAT<br>GGAAATCCAGGGAGGAGGCGGTGGTGGAGGTGGCAAGAGTGGAAAGACAATGT[T/C]CA<br>CCAACAGCAAGGAGAATTTGTTCATAGTTTTTCTTGTTACACTTTGGTACTCTTCAAACATT<br>GGTGTGATCCTTCTGAACAAGTATCTGCTCTCAAACTATGGATTCAAGTTCCCAATCTTCC<br>TCACAATGTGCCACATGTCGGCCTGTGCTGTCCTCAGCTATGTCTCCATTGTGTT |
| >Gm03_36959955 | AACGAATTGCAAAAGTTTTGGAACTGTTCTCAAATAAAAATGCTCCTCAAACAGCTGGTTC<br>TGACATAAACAGATATAAACTAGTTATGTTCAGTGCGCAGAGAGGACTGTTGTTGGCATAT<br>TTGCCTTCAATCATTTCTTTACTCAACACCCATATATGTTTTGTCATGCCTGGAAAT[C/T]TA<br>GTATGGTATCAAGTCTTCTCAAAACTACATAGAATTAGAATGCGGTAACGAATGGCAGCAT<br>TAAAAGCACACACTACACTAGCAGAAGAAATCAGCAAAGCAAGCCGGGTAATGCCCAAAT<br>GTAAAAAAAGTAGCTTGGTTAGGCAATTCATGTCAATGTTCATCTACTTGTTTTTCG |
| >Gm03_36996777 | CATATATTTGCATTCACTTAACGTAGTCTTGATACCCCAATCCACTAACAATATTTTTTTTAT<br>ATTATTATTATTATCATCATCATCAAAATGCCTGGCTTGTAAATGAAATGGATTTGGACCAA<br>ACTATCTAGTGACGTGCGCAATGAAATCATCCAGTTCCGCGCGAGAAACACCCC[A/G]TTC<br>ATCCTTGGACCTGCGAATAGCATTTTTCAGGTTCATTGCCCTTTGTCTCATCTCATCACCTT<br>CTTTTGTTGCCATCAATCTCCTCACGGCATTCTCAACATCTGATGATGTCACCAACTCGTC<br>CCTGTGGTCCCAGTCCTTCACAACCACCCCAACTCTGAGCACTTCTGTTACCAA |
| >Gm03_36997184 | GCACCCCCATTGTCATGCTCTCCATGCAAGAGTTCCATCCACAGTGACTCATAAACCCAC<br>CAGTTGAACTGTGACTTAGAATCTCCAATTGGGGTGCCCAGTCTCTCACAACCAACCCCG<br>TGCCTTTCACTCTCTCTTCAAACCCCTTTGGAAGCTCAGCAGTTCTCACGCCATCCTCA[G/<br>A]GGAACACATCTCCCTTGTCAGCATCCCTCACCACCCATATGAACTTTTGCTTGCTTTTTT<br>CCAACCCGTTTGCAACCTCCTTGATTTGCTCCTCAGAGAAGCATGTTGTTGTCCCAAACGA<br>CACATACAAAACTGACCCTGCTTCTTGCTTGTCAAGCCACTCAACACTGAAGTGCCTTG |
| >Gm03_36997185 | CACCCCCATTGTCATGCTCTCCATGCAAGAGTTCCATCCACAGTGACTCATAAACCCACC<br>AGTTGAACTGTGACTTAGAATCTCCAATTGGGGTGCCCAGTCTCTCACAACCAACCCCGT<br>GCCTTTCACTCTCTCTTCAAACCCCTTTGGAAGCTCAGCAGTTCTCACGCCATCCTCAT[T/<br>C]GAACACATCTCCCTTGTCAGCATCCCTCACCACCCATATGAACTTTTGCTTGCTTTTTTC<br>CAACCCGTTTGCAACCTCCTTGATTTGCTCCTCAGAGAAGCATGTTGTTGTCCCAAACGAC<br>ACATACAAAACTGACCCTGCTTCTTGCTTGTCAAGCCACTCAACACTGAAGTGCCTTGT |
| >Gm03_37024958 | GAAATGAAGAATGGGGTTTAGAGTTAGTCAAGACAAGTGGTGTGGTGTCCTATGTTATGA<br>CTGCACACATGTGAAGTGAAGTAGAGACTATTCAGTCCACAGCAGCTGTTTCTAGTGTGT |

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| | GTGTCATTGCATTCCTCATCCTTTTCCTCTTTTTTCACGCCTTAATTTCTTTCTCTCTT[A/T]C<br>TCCCTCTTCCTCTCTGGAATTTGGAGCATCAGCCAGCACTCTATGGATTCTCTGATTGGTA<br>ATTGGCCATCCTACGATCCTCACAACTTCAGTCAGCTTCGACCTTCCGATCCTTCTAGTTC<br>TTCTGTAAGTTGCTGTTGTTGTTGTCTATGAAATTGATAATCCTGGTAATAATTACT |
| >Gm03_37027198 | GTTAAGCAACCTTTTTGTAGAAGGGTTCTTCTATAATAACTCTAGTTCATTTTCTCCAATGT<br>TATTTTTCAAGTTGCTTAACTTTTGTTTTTTTAATTTCGGTAGACTCAATGGTGTTTTCTAAT<br>TCAAAGTTTGCTAACCTGTTGAAGTTCCAACAGTGATAAGTACTGAAGCCAAAA[C/T]CATC<br>CTCATGAGACATATTTATCAGCATTCTGAGCAGAAGGTTAGTGACTTGATGGTTAAAGAGC<br>ATGTGTTTTGGTGCAGTTAGGTATGCATATGCTTGATGCTCATAACCTTTTGTGTTTTTCAG<br>TTGAATCCAAAAAGAGCTGCATCTGATAACCTTCTTTTACCAGAGCATGGATG |
| >Gm03_37144398 | TCCTTAAAAAGTTGACACCAAAACTGAAAAAGCATTTATCTATGTTGCAAATGTTTAGGGCT<br>TTCGTAAAATTGCAACAAGCAGATGGGAGTTTTTCAATGACAGGTTCAAGAAAGGTGAAA<br>GAGAACTTCTACATGAGATTCGGCGAAGAAAAGCTTGGACCAGCAAGCAACAACCAA[G/T]<br>GGCACCAAACCAAGCAACACTCCAAGACTCTGATGAAGATCAAAGGTCCTCATCAATCTC<br>ATCATCTTCTGGTTACACTACCCTTGTGGATGAAAACAAGCGACTCAAGAAGGAGAATGG<br>GGTGTTGAACTCTGAGCTCACAAGTATGAAAAGGAAGTGCAAGGAACTTCTTGATTTGGT |
| >Gm03_37165409 | AAGATTCACACGTACCATCTCGAAACAGTTGTTCTGATAACTGTTCCTGAGAAGCTCCATC<br>ACAGACAGGTGTACCAGAGATTAGTGTTTTTACTCTTTCTTCATTGTCAAGCCAGCGCCCA<br>ATTAAGCCTATCATTTCTCGTGTCAAGCTAATCTCCGCAATGGATGTATTTCCTGAT[A/C]T<br>GACGGAGTCAGTGCCCCCAATGCAAATTTCAAGGTCATTAAGTAAGCTTCTAGGATGAGA<br>AGGGACATCAAGAAGTCTTTCTTGAATAGCTTGGCAGAGGTTTTGCAAGTCTGCAGAACT<br>CACTTCAGTAGGTTTGACCTGGAAACAGGGAAACAGAGAATTACATATTTGAAGATGCT |
| >Gm03_37827399 | GTCGAGTGATCCATACCCGCTAGGTTTTACACATTCTTTTCCCTGAAACAAACACCACCCC<br>TTTTAGGTCTTCTTCTAATCCTCCCTCTCTCTAACTTTCACACGCAGCGGCTTCTTCTTCCG<br>TTTTCCTGAATCGGTGTGAACAATGGCGACGTACGCTGCGATGAAACCCACCAAGC[A/C]A<br>GGGTTGGAGGAGTCCCAGGAACAGATCCATAAGATAAGGATCACCCTTTCTTCCAAGCAC<br>GTCAAAAACCTCGAGAAGGGTATGCACCTATTTATTCTACTTTTTGTTTTTAAGGTTGTTGC<br>TATCCTTAGCCTTATGTTTCTAGTTTTGTGTTACTGTTAGTTTGTGCGGACTTGGTT |
| >Gm03_37828684 | CAACACATGGGATAGATTTGAACTTCGTGTCCACAAGAGAGTGATTGACCTCTACAGTTCC<br>CCAGATGTGGTTAAGCAGATTACCTCTATCACAATCGAACCTGGTGTGGAAGTTGAGGTG<br>ACCATTGCAGATGCTTGATCTATATCCAAATTTTAACTGTTATGGTTTCCTAGTTTTT[T/A]G<br>TCTCCTCTTATTCTGTATTTTATAAGTTTTGATTGCGGGACCGAGTTGAATTGTTTTCTTTT<br>GTTTTACGGTTGTAGACGGTTGATGAATACCTGAGAAATGTCATTTTTATATATTCTAGAAT<br>CCTACATATATTTGTTTTGAAATTATTACGAATCATTTCTAATGGACTCAGCTAA |
| >Gm03_37828791 | TGGAAGTTGAGGTGACCATTGCAGATGCTTGATCTATATCCAAATTTTAACTGTTATGGTT<br>TCCTAGTTTTTCGTCTCCTCTTATTCTGTATTTTATAAGTTTTGATTGCGGGACCGAGTTGA<br>ATTGTTTTCTTTTGTTTTACGGTTGTAGACGGTTGATGAATACCTGAGAAATGTCA[C/T]TTT<br>TATATATTCTAGAATCCTACATATATTTGTTTTGAAATTATTACGAATCATTTCTAATGGACT<br>CAGCTAAGATTATATCTTTTCCTTTTCCTTTATCATGTTCTGCAAATTTTTAAACCTGAAACT<br>GATTGTGAACTAGATAAGTTGGAAAGGTGTTTTTGCAAATTTGTACAATTT |
| >Gm03_37832228 | CCTTGTGTTCATGAAACTGCCTTTTGTTTTTAGGTACCAACACATGGGACAGATTTGAACT<br>TCGTGTGCACAAGAGGGTGATTGACCTCTACAGTTCCCCAGATGTGGTTAAGCAGATTAC<br>CTCTATCACGATTGAACCTGGTGTGGAGGTTGAGGTGACCATTGCAGATGCTTGATCT[C/<br>T]GATCCAAATTTTAACTGTTATGCTTCCTAGTTTTTTTTCCCTCTCTTTTTGTATTTTGTAAG<br>TTTTGATTGTGGGACTGAGTTGGATTGTTTTCTCTAGTTTTACGGTTGTAGACATTGATGAA<br>TACCCGAGAAATGTCATCTTAATATATTCTAGAGTGTTACATATTTTGTTTGAAAT |
| >Gm03_37863675 | CTTTGATCTAATGTTTGCAAGAGCATCAGTCCCGCTAACGGTTGCAGCATCCGAGTGCCA<br>CGCTTCGGGAAACGCCTCATCAGCTTGTGTACCCATCCAAACAGCCAGCATCAGCTCCCC<br>CTTCGCCTTGTCACCCTTTCTGTCCTCCAGCCTATACCACTGCGGTGCCAAGGGACTGT[C<br>/T]TGGTGGAACACGCTTTGGGATCTCATTGAGGTCAAATAAGACACGACCAATGAAGTCAT<br>CTTTCACGACATCCTTGTCCTTCACAGTGACCTCCAGTATGGAAGCCTGAATGCGGTCTTT<br>GGAGAAAGCAAAAACCTGGTTCCATTCGGGATTAGACTTCTTGTCGAAGTGCCGAGTGGT |
| >Gm03_38065066 | TGTGGAACCACCACTCAAGACTATGTTACCATAGAGATCCTTCCTGATGTCGACATCACAC<br>TTCATGATAGAGTTATATGTTGTCTCATGGATACCAGGAGATTCCATCCCAATCATGGATG<br>GCTGGAAGAGAACTTCAGGGCACCGGAATCGTTCAGCACCGATCGTAATCACCTGCC[C/T<br>]ATCAGGTAGCTCATAGCTCTTCTCAACTGCTGAGCTGGTCTTGGCAGTTTCCAACTCCTG<br>CTCATAATCAAGAGCAATGTAGGCCAGTTTCTCCTTCATGTCCCTCACAATTTCCCGCTCC |

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| | GCAGATGTGGTGAAAGAGTAACCACGCTCAGTCAAGATTTTCATCAGGGCATCAGTGAG |
| >Gm03_38083417 | GTTTTCTTTTCTCTTCCATCCATGGATTCTCTGAGTTCCATCAACGGCGATTTCGGCTTCG<br>ACGGCGGCACGGATCGCAGATTCGCGTTTTCGCGCCAAGCCTCCTTCCAACAACCTCAC<br>ACGCCGATAGACATTCCGGCGCACGGCCACTACGACCACCACCACTACTGGTCCCCGCG<br>[T/A]GACGATAAACCCTCCGCCGCCTCTCTCCAAATATCCTCTCTCTCCTCCTTCGTTTTCT<br>CCGTTTTCCGAAGCGTTAGGTCCGGCCACAGGTACATGAAGAGGCTCTTTCTCATGATCT<br>CGCTCAATGTCGCGTACTCCACCGCCGAATTGCTCACTGGACTCTTCACCGGTCGCGTAG<br>GT |
| >Gm03_38117453 | GTACATGAAATTATAATAACCGTTTTCTGCACTTGTACTTAATTATTGGCCTTACTTGCTAT<br>TCTCATGAGCTACAGCAGCAATGTGGTTGCTTGTTTGCCCCAGCAAACTGCTTATGGAAC<br>GCGCTTTCACCATGCCAAGCTTCATCCTCTTCTTCGTCGACGTCATTATTATCCCTG[G/A]C<br>TTCTTCTCCTCCTTCTCCCCAAAGGGCTCAGCATCATCAACACACTCAATTTGCTTCTCGA<br>GAGAACAAAAAGAAGGGGAAGAAGAAGAAGGGTGAGGCACGTGGTGCACGTGCACCTC<br>CTTTGGTGCAGTTGATGCAATAATGGAACGGCTTCTAACACTTGTCATGCTTCTGAGTCT |
| >Gm03_38117485 | TTGTACTTAATTATTGGCCTTACTTGCTATTCTCATGAGCTACAGCAGCAATGTGGTTGCTT<br>GTTTGCCCCAGCAAACTGCTTATGGAACGCGCTTTCACCATGCCAAGCTTCATCCTCTTCT<br>TCGTCGACGTCATTATTATCCCTGGCTTCTTCTCCTCCTTCTCCCCAAAGGGCTCA[G/T]CA<br>TCATCAACACACTCAATTTGCTTCTCGAGAGAACAAAAAGAAGGGGAAGAAGAAGAAGGG<br>TGAGGCACGTGGTGCACGTGCACCTCCTTTGGTGCAGTTGATGCAATAATGGAACGGCTT<br>CTAACACTTGTCATGCTTCTGAGTCTTCCCTTCCCCAAGTGATGCTCACACAGCGAGT |
| >Gm03_38132996 | TGACAATTTACCTATAGAAAAATGGTTGATTTAATTACATAATTACTATGATGCTTATTAAGT<br>AGTGGTTTTGTTTTGAGTGGAAAAGGTGCACATAGTTTTGGTCGTGCGCAGTGTAGATTTT<br>TCAACCAGAGACTGTTCAACTTCAGCGGCACAGGTAGCCCTGATCCCACGCTGAA[C/A]A<br>CAACCTATTTAGCGACACTTCAGCAAAACTGTCCACAAAACGGAAGCGGCAACACTCTGA<br>ACAACCTCGACCCTTCGTCTCCGGACACCTTCGACAACAACTACTTCCAAAACCTTCTCAG<br>CAATCAGGGCCTTCTCCAAACAGACCAAGAGCTCTTTTCCACCAACGGCGCCGCCACA |
| >Gm03_38136913 | TGTATTGGATCTGGGGTCCTTCATGTTTGCGACGAAATTAGGGTTTACTCCCAATTTCGCC<br>CCAAATTTTGGGGGTTTTCGTTTCTGATTGTTCAATTTCATCACCCGACCCCCCGTAGAAC<br>CTGGGTTTCTTCGATTTGTGTTAAACTCGAGCTTTTTGGTGGAAAAATACTCGCTTT[T/G]C<br>TTTTCCCTTTGTTGTTCCCTTTCCCTGCAATTGAAATTTGTAATAAAGGAAGCTTCTTTCTA<br>GTTTTGTGATTGAAGCTGCGATGGAGGAAGAGACCTCCGATGCAATGAACCTTGATTTGA<br>ATCTGGGCCCAGGCCCAGAACCCGAAACTGGGCCCATAAGCAATGAAGCTGTGAACT |
| >Gm03_38170431 | TTAGATATCTTAGTATGGGAAAATAAAACGAAAATGTGAAATCTTTGCAGCTGTGGAAAGA<br>TGGAGAGATGAAAGAAGAAGTCATTGGAGGCCATAAGGCCTGGCTAGTTATTGAGGAAGT<br>CAAAGAAATGATCCAAAAGTATTTATGATTCTTCTATTTTATTTTTCTTGCTCCCTCA[A/G]C<br>CCCCCACCCCACCTCACAAAAAAAAAAAAAAGAAGAAAGAAAGAAGTTACAATTGAAGAAA<br>CTAATCTTCCAATGTTTTTACTTTTTTTTCTTTAACATTTTTCATGTTGGCAACCGCATGTAG<br>CTGTGTATCATATATATATATTAATGGAACTGTGTACCATAGCTGAAAGAAATTTA |
| >Gm03_38173719 | CGTCGTTGTCGTTGTCGCCGCCGGAGACGGCGACAACGACGACGGCGCAACCTTCTTGG<br>GTTCCAATTCGTCCTTAACAGGACCTCCTTTGGCCATGCTCTGCACCCAAACCCTAACCTT<br>CTCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGCATCCTTAATCCTCTTTCCAACCG[A/<br>T]TCCCTCGTCGTCGACAGTAACCCTAACCTCGGGATCCTCGTCGGCGTTCTCGTCGGAG<br>ATGTAGGGGATCTCGACGGTGCCGTCGACCTTGAGAAGAGAGGTTCCCAGGGTGTCTTT<br>GGCCTCTCCCTGCCAATTGAGAGTGAGGCTGATCTCGTAGCCGGGGATGATCTTCCCCTT<br>TCG |
| >Gm03_38173815 | GCTCTGCACCCAAACCCTAACCTTCTCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGC<br>ATCCTTAATCCTCTTTCCAACCGGTCCCTCGTCGTCGACAGTAACCCTAACCTCGGGATC<br>CTCGTCGGCGTTCTCGTCGGAGATGTAGGGGATCTCGACGGTGCCGTCGACCTTGAGAA[<br>C/G]AGAGGTTCCCAGGGTGTCTTTGGCCTCTCCCTGCCAATTGAGAGTGAGGCTGATCTC<br>GTAGCCGGGGATGATCTTCCCCTTTCGGACATTGATGTAGGCCTCGCCGTCGAGGGAGC<br>GAAGCGACGTCGTTTTGAGGAAGAGGTTACCCTCGCCGTCGAGGATAGGGAGGTTAGTG<br>AGGAG |
| >Gm03_38174150 | CGAGGATAGGGAGGTTAGTGAGGAGGCTGGTGAAGAAGGTCTTGACCAGTCGAGGCAGT<br>TGGTCTCGGACCAATGCCAGTTGTGGACATTGGTGCCGTCGGGGCGGTCCTCCACGATC<br>CACCGCTTGTCGCCCTCACCGTAACGAGCCATTGCAACTGATGCCTCTTTTCTGGGAGAG<br>T[A/C]CCTTAGTGATTAATAATAATTGGATTGGGGTGAGGGTTATGAACTATGATGATTATT<br>ATTATATGTGTTGAGTGTGTGTGGAATGGTCTAGAATGAAAAGGAAGGGTCTAGAATGTTG |

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| | ATGTTGCTTTGGGTACACTTTCTTCACCAACCAACCAAAGCCCGAGAAGGTTCCCTAGGG<br>TT |
| >Gm03_38174157 | AGGGAGGTTAGTGAGGAGGCTGGTGAAGAAGGTCTTGACCAGTCGAGGCAGTTGGTCTC<br>GGACCAATGCCAGTTGTGGACATTGGTGCCGTCGGGGCGGTCCTCCACGATCCACCGCT<br>TGTCGCCCTCACCGTAACGAGCCATTGCAACTGATGCCTCTTTTCTGGGAGAGTTCCTTA<br>G[T/C]GATTAATAATAATTGGATTGGGGTGAGGGTTATGAACTATGATGATTATTATTATAT<br>GTGTTGAGTGTGTGTGGAATGGTCTAGAATGAAAAGGAAGGGTCTAGAATGTTGATGTTG<br>CTTTGGGTACACTTTCTTCACCAACCAACCAAAGCCCGAGAAGGTTCCCTAGGGTTTTCTT<br>TT |
| >Gm03_38718231 | GATATAAAGAGGCTTACCGTTGATTTTGATTGAGGTTAAGTTTATGAAATACTCATCAGAC<br>GGTTGTGGATTGTCGGTGACGACGGTGTCGGCAACGGGGTTTACGATGAGTTGTGTGTA<br>AGTAAGGTCAATTTTGGAAGAGAAAAGAAATGAGGAGGCAGTGGAGGCGAATATAGCTG[<br>G/A]CCCTGTGTTGGCTGATGAAGCTGGCAGGCAGAGAGTGAAAGAACGAGGTGAGGTTA<br>ATGAAGTGCTGATTTGGGCCGGGAGGGAGTAGTTGGACCGGCCCAATGAGGCGAGGCC<br>CAATGCATTGGCGGCGAGGCCCTGGAGAAGATGGGCCGTGGCGCAGGAGAAGATGAAG<br>TCGGAGAT |
| >Gm03_38942920 | TAATTTCTTTTTTTTTTCGCATTTCTATTTTTTCTCCTCATTTCCTTGGGAACCAAACAGTTA<br>GATTAATGACAGTTAGATTGATGAGGTACCTGAATCCTGACATAGTCGGTACGATTCCAAC<br>AGAAGGCGTTCCCTAGCATCTGGTCAACGGTCTCTGAAACACCGTCGAGCGCAAT[C/T]TC<br>AATCAGCATTGACGTAGAGCACTCGCCGGCATTGTTCATTCTCTTCGCCGGAGCTCCGTT<br>TCCGATGGAGAGAACAAGGAGATCCTCCACGCCGTTCACCGACGGGAAGTCGCGCTTGT<br>TGTGGAGGACGTGCGTGACCGCCGCCGCGGCCGGATTGTTCATCACTAAGCCGCCGTCG |
| >Gm03_38942927 | TTTTTTTTTTCGCATTTCTATTTTTTCTCCTCATTTCCTTGGGAACCAAACAGTTAGATTAAT<br>GACAGTTAGATTGATGAGGTACCTGAATCCTGACATAGTCGGTACGATTCCAACAGAAGG<br>CGTTCCCTAGCATCTGGTCAACGGTCTCTGAAACACCGTCGAGCGCAATGTCAATC[T/C]G<br>CATTGACGTAGAGCACTCGCCGGCATTGTTCATTCTCTTCGCCGGAGCTCCGTTTCCGAT<br>GGAGAGAACAAGGAGATCCTCCACGCCGTTCACCGACGGGAAGTCGCGCTTGTTGTGGA<br>GGACGTGCGTGACCGCCGCCGCGGCCGGATTGTTCATCACTAAGCCGCCGTCGACGGC<br>GG |
| >Gm03_39788794 | ACTGGGTGAAACGAGCCCGCAAAAAGAGGGGTATATGCGAGTGGAATATTTAGTTTCGAA<br>ACTGTATTATGTTTCACTTATGCGCTGTTTTTTTCTTTCTGTTCCGTTTCCTATAAATCCATG<br>CCACACCCTTCACCTTATTTTCCGCACATCATATTACTCTTTCACATCATTTCTCA[A/T]TCT<br>TCCTTGCTTGCACTCTCATCAGGTCAGTTTCACAACCCCTTCTTCTCCCTCTCTCAATATTG<br>TTTTGTTTTTTCTCTTTGGCATCATTATCTTTCTCATGTGTCACCCCATGCACATGCATCTC<br>GCGACTCCATCACACCGATTCCTCTATTTTCTTTTCATAACAAAATACTGAGA |
| >Gm03_39788799 | GTGAAACGAGCCCGCAAAAAGAGGGGTATATGCGAGTGGAATATTTAGTTTCGAAACTGT<br>ATTATGTTTCACTTATGCGCTGTTTTTTTCTTTCTGTTCCGTTTCCTATAAATCCATGCCACA<br>CCCTTCACCTTATTTTCCGCACATCATATTACTCTTTCACATCATTTCTCAATCTT[T/C]CTT<br>GCTTGCACTCTCATCAGGTCAGTTTCACAACCCCTTCTTCTCCCTCTCTCAATATTGTTTTG<br>TTTTTTCTCTTTGGCATCATTATCTTTCTCATGTGTCACCCCATGCACATGCATCTCGCGAC<br>TCCATCACACCGATTCCTCTATTTTCTTTTCATAACAAAATACTGAGATATAT |
| >Gm03_39790874 | TTCAGTTGCATTCAAGGAAAGGTTTGATGCTCCACCATATGAGCTTGATCCAGCTGGCTCA<br>ACTGTTGCACAAGCAGACTACATTTGGAGGATAATTGTTATGGTGGGAGCACTGCCAGCT<br>GCGTTAACTTACTACTGGAGGATGAAGATGCCGGAAACTGCCCGTTACACCGCTCTAG[T/<br>G]CGCCAAGAACACGAAGCAGGCTGCAGCAGATATGTCTAAGGTTCTGCAGGTTGAGATT<br>CAAGCTGAACCGCAGAAAGAGGAGCAGAAGGCTAACTCATATGGCTTATTTTCAAAGGAG<br>TTCCTCCGTCGCCATGGACTGCATCTACTTGGTACAGCAAGCACATGGTTCTTGCTTGATA<br>T |
| >Gm03_39795164 | TCTGCAGATGACAAAGCATGAAGAGGTAATTCATTAAAGGTAAAACCTAGTAGATTCTGAT<br>ATGAAAATGAATTTAAGTGCTTAAACATTTCAATGTGCACGGTCTCTCAGCACTTCAAGAT<br>CCATTTCTGTGGGGTCAGTAGCCTGGATTTCATAATGGACACCATCTAGCTCACGTC[C/A]<br>AAACCTGTCTTTAGTAGTGGCATAGAGCATCTTGGCACGGATCCGAGATGTTGAAGGGGA<br>CCTAATCAATATCATGCAATGAATAACTAAGAGTGATATCTCTGGCAAAAGCATAGAATGA<br>GTAAGTTAAGAAGCATGTTGTTGAGGATACATGAGAAGGCTGGGATAAAAGAAGTTCAA |
| >Gm03_39795203 | GTAAAACCTAGTAGATTCTGATATGAAAATGAATTTAAGTGCTTAAACATTTCAATGTGCAC<br>GGTCTCTCAGCACTTCAAGATCCATTTCTGTGGGGTCAGTAGCCTGGATTTCATAATGGA<br>CACCATCTAGCTCACGTCTAAACCTGTCTTTAGTAGTGGCATAGAGCATCTTGGCAC[T/A] |

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| | GATCCGAGATGTTGAAGGGGACCTAATCAATATCATGCAATGAATAACTAAGAGTGATATC<br>TCTGGCAAAAGCATAGAATGAGTAAGTTAAGAAGCATGTTGTTGAGGATACATGAGAAGG<br>CTGGGATAAAAGAAGTTCAATCCAAGTTTGTTCTTCACAAGAACAAGAGAGGAAGACAA |
| >Gm03_39964048 | CGGGCCATTCCTGCACCGATCAATGGAAGAATTTCAACAACAAAGCGAATCGCATTTACA<br>ATTTCGATGCGGATCGGCTTATGTTAGGGTTTGAGATCGAGAAGAAGAGAATTAGATCAT<br>ACGCGGAAGCAGCAAGAAGCTGAGAAGAAATGCAATTGGCAAGCGAAGACTTCGACTTC[<br>T/A]AGTGAGGAGTGGCTTGAGTGCAACTGAACTAGAAGTCGTCGTCGTCTTGGTCGTGGC<br>ATTAATTTTAGTTTCCAATAATATCCTTGAATCCACGTTTTAACTATGCCTATCTTCGCAAAA<br>TCAGAAAATGTTTTTTTTTTTTTACAATAAAGTTTTAGACCAGGGTACTACTTGCATATT |
| >Gm03_39966061 | ATTTTGAGAATATTACATTGACTGCAAACACAACTCAAAATCCATTAGTGCAAATTAACATT<br>CGTCGCTTCATTCTAATAACGTGAGCCAGATTTTGATGTAACTGGTTCACAACACAAAAGG<br>CATAAATGGCTCAATCACTTGACACCAGGCACCAGCACTAGTTCACAAAATACTGT[A/C]TA<br>CGCATGGAACAAAAGACACTTAAAATTTAGAGCTTCTACATCACTCAATACTTTGGAGGTG<br>GCTGCTGGGTTGGTAATAATCCAAAACGCTTCTTCAGAAGAACTCTCTGTCTTGAATATTT<br>ATCATCGGGTGAAAACCGGGCTGCAGTTCAGGAAAACCAGGTAAGTACAGAAAATG |
| >Gm03_39967974 | TATCGTTTATGTAAAACTGAAGATACATGGTCACTGCAAAAAAATTGAAATACATGAAATCA<br>TTGCCAGAAACATAGCTCGTCAGATGGAAACAATAATGAGTCTAGAGTTTTCGGAAACATA<br>CCTGATCTTTGATCGAAGGAAAGAACAGCAATAGAGGTAGAAACCTGCAATGGAGG[C/T]G<br>AGAAAAAGGGTTTAAGGTTTTCGGATCCTCTGGTCTATACAAAGTGTTTTGTTTCAACGAG<br>AATGGGCCTGTCATTTAGGTATTGGTTATGGGAGATTTTATTCCTACACCGAGCATATTTC<br>TTCCTGCACCCAGCATATTTATGGAAAACCAAAAATACCTTACGTATAGTCTATAAG |
| >Gm03_39986148 | TTGTGAAGATGCTGCATGCAATCATTTGTTGAAATTTTTATGGCTGGAGTTTTATTTATACT<br>TTCTACTCGTGTGTTCTTAACTTTTTTATTTTTATCTTGTCTCTTAAGTATCATGATCAAGAG<br>AAGGGACGCAATTCGTCCCGATATGGCAGCAGTTCAAGAAGACCCATAATCTCA[G/C]CGT<br>CAACCAGGCCAAGTTCCTCTGGTGATCATACTGACAGTCGTACTGGCCGGCTAACCTCAA<br>GTGGAAGCCGACAATCTGCCACACATAGAAATATTCAACCTATGCACGAGACAAAACAAC<br>CAACTTACACACGCTCTGGATCCACCAGAGGCAACCGTGATGATCCTCTGCGGAGTT |
| >Gm03_39993121 | CACTATTTGAAATATTATAATTAGGTGAGAGGGAAAACGATGATTGGGAAGGAGAAGGAG<br>AACCTTTGGCGGTGGGTTTCTTGGTGAAGATGTTCATGGCGATCGGTGCGTGTTGTCACA<br>GTCGAAGGCAATTTACGGAGAGACACGCAAACACAACCCAACGATGGTGGAGAGAAGAA[<br>C/T]GATCCTCGCAATTTTCATGTTTTATTTTTTTTATTTTTTTTTTATAATATATGTACTTTCT<br>CATTCGACTATATATAATATTTTAAGATTTCAGTTAACAGAAACCGCATAGGTCTTGGTCGG<br>GTATTTAAGCATATAGTTGACTTGTCTAATTACACTAAGATGCTTATATGTTTTTGC |
| >Gm03_40055679 | CATTACCTTAAAGACTATTTAGCCGAGAAGGTAATACTTGAAGGAATAAATTGATGGTTTA<br>GCCTTATTTTTCTTTTTAATGGCTTAAGCTATGTTTATTTTTCTTCCAAATTTTTATTTTTTTG<br>GTTTGACATCTAACCTATACTTTCTATTGGTGGCAGATGTAAGGCACATACCTT[A/G]CGTG<br>GAAAACGTGGTGGCAATATATAGAAGCTTGGATGCCACTTTTTGTGCTAGTTTGTTTCAGT<br>CGCGTTCTTCTGGTGAAGCCTCTTTGTTTTTGGAGAGCTTTTCTGATTGATTGAAGAAAAA<br>AAAGCTATGTATTACTTGATGCTGATTTGATATTGTCTTTTAAAATTCGTTGAT |
| >Gm03_40056070 | AAACAATTCTTAATTCAACTTCTAGTAGTTTAAAAACTGGCAAGCTTCCTCGGAACTTAACT<br>AATTTGAATGAGGTTGGGGTTGGCCAAACTTTCAAATCCAAGAGTGTGGTGCATGATAAA<br>GCTGAGGAGCTTGAGTTGTCTTGTGGGAGAGGGAAGCCCAATCCAATGCAATCTTCC[T/C]<br>AGATGGGACTTGGGGGCCGAGAACAGTGTGGAGTTATGGAAATGGATGTGAATCAAGTA<br>ACACAATCAGCACCTGATAGCCCGCCCTTTTGTGATACCAAAGGTTCAGATAATGACTGC<br>AGTGATCAAGATAGTGAGCATGTAAGGAAACATACTCTCTTATTTATGGTCTTCTGTTTGT |
| >Gm03_40131229 | TTATATGTTAAACTTTCACCAAGAACAATAAACCACATAAGCCAACCCAGTCAACCCCTGA<br>ACAACATTTTGCAAAACAAGGTGCCCTCAACCTCATTCAAATCCATGCACTCACAAATCAC<br>AATGAGTAAAGCAGACTATAAAAAAGAAATTAAGATCACAAGAAAAACCAAGAAAAC[C/G]<br>CCTCTTATAACTATCAATTAATCTCATCAAAACACTTCTCACTGAGAAGTCAAGCAAAAACA<br>AACTATATGTGCCAAATGCCAATATTGTCTGCAATTCAACCTAAAACAATATCTGAAACAAC<br>TTCAAGAAGCAGAAACATTACATAAACTAAAAACCCAGCTTAAACAATAGCATTTG |
| >Gm03_40132046 | GATTCACTATGACCCCAGCATTATCTGCCAAAACGCAAACAATAACAATTAGAAAACAGAA<br>AAAAAAATTAACAAAGACAGAGATCAATAATAAGGAAACAGAAGAAAAAGTGAAATACCTT<br>CGAAGTACATGTAAACACCGTCCTTTCGGCGCCACGGCTTGCGCTGACGGACGATGA[G/<br>C]GGCGGGGAGCACCTTTTTACGGAGATCAGGCTTTCCCTTCTTGACGGTGGCCATAACC<br>ATGTCACCCACGCAAGCTGACGGCAACCGGTTCAGCCTTCCCTTGATCCCCTTCACTGAT<br>ATGATGTAGAGATTCTTCGCGCCGGTGTTGTCGGCGCAGTTCACCGTCGCCGCCACCGG |

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| >Gm03_40154315 | TTGGTGACGTGAATTCGTATGCTGGGGATCCGAATTCCATCCTACAGCAAGCTCAATTCA<br>GTGCAACTGGTGAGTCCAAGCCAGCTGGTGGAGCGGCTGATTCTAACGAGGCCTCTGCT<br>GGGGTTGGAAGCACAGCTGCTGACTCTACTATGGTATCTGACTACAATTCATCTGTAAAT[<br>G/T]GTGGTGTTGCCGGTGCAGTGACAAATACTTCTGGACTTGAAAACGGGAATGCGTTGG<br>AGAATGCTGATGGGTCGGCTGATGAGAAACAGCAAGCAGATGGTTATGGTGTGCCTTTTT<br>CTTTTACCTTTTTACTTTCAATGGAATTATCATGTTTTAAATTTTATTTTTGGACAATAAATT |
| >Gm03_40160427 | ACTACTTGAGGTCTGTCTTCACTATTACTTTCCTTGTCCTGCTAAATTCACTCATATTATGT<br>AGTTGGTGATTCTTCTCTTTGTATTTCTAAGTGTTCTTCATCTCTAATGAGATTCTTTAATTC<br>AATGTTACATGCAGGCTATATTGCATTTTGAGGCTATTCAACCCTTGCCAAAGC[C/A]CGTT<br>GATATTGACTTTCTGGAGTCATGGGTTGTCAAATTCATAATGCCTAACTCAGAGAGTCCTG<br>GTGTAGCAAGTGCAACAGAGCGTGAGGAACTTTCTAGTATTTTTCTGGAGGTAATTCCTTG<br>TCAGAATGGTGTTCTGGCATGTGTTCTAAAGGAGTTTCCTTAAGAAATGTGTTT |
| >Gm03_40172340 | CAGACTACGGTTTGGAGGAAGAAGCCAGGGAATATGTCAACTCAGTTCATATAGATGATG<br>ATCCAGTGGACGAGTATAGTCTTCCTGAGCACCAGCAGCAGCTACAAGAAGAACTTGAAA<br>CCGAAATTGTGGAGGAGGAAACTCCCGTACAGGAGGCATCTCCACCAATTCATAGCATT[T<br>/C]CACACACTGTCCAAGAACCCCCTGTTGCTCTTGTGGAAGAGTCCTTTGAGGAGCCTCC<br>TAAGAAAACATATGCATCTATTGTATGTAATACTTTCTATACATGTTCTTTTTTTTTTGGCAG<br>ACTACCTTTTTTTGTGTGTAGTTATGTACTATCCATAAAAAAGGTACCACATGACTGGA |
| >Gm03_40179701 | CCACCATTCAGCACACTGAACCCATCTTCACTCTCACTTTCCATTTCTTCATCTTCCTCTTC<br>TTCACTCAAGCCATTGTGCTTGGCAGTAGAGAAAGAAGGAATGGTCTCCAGCACCAAGCT<br>CCTGTGTCTAGCTGAAAACCTCTTGGAAGGGTCTGAAAACTCAAACCTTTCTTCATT[T/C]T<br>TGCAAGAAAAGAAGGCCAAGTCTTGCAAGTTCCCATCAGATTGGACTCTTCTGATCAAGC<br>CTTTGTTTTGCCTTTCAAGCTCACCAATTGAGGGAGAGATTGGAGAAGAACCACATGCAG<br>AGGACCCAGTTTGGTGGAAAGTAAGTTTGTGATAATGTTGTGGGACAGTGGTTGGTGGA |
| >Gm03_40211426 | TGGCGTACCAGCCGGTGTCGGAGAAGACGCCGTTGACGTTTTCCAACGGAGGACCGAGG<br>CCGGCGTTGGTAGTGAACTTGCACATGTTGGTCCAAAGGGATAAGCTTCTGCAATGCTTC<br>AACATGTCCTCGTTGAAGCGCGAGGGAAGGTCGTGGACGAAGATGTAGCGTCCTCCGCA<br>T[G/C]GGTCGCTCTTGTTGTCGGCGGTTCGGAGGGCACGGTCGAAGGGGAAAGTGGGTT<br>CCTTCGGTTCGGAAACTCGCTCAGGGAAGCCGAGGTTTTTACGAGGTTGTTGGTGTTGTT<br>GTTGGGATTGGAAAGTGATGGGGACTGCTGGGTCAGGGGCGGTGGGTTGGTGGCGGAG<br>GACGGCGA |
| >Gm03_40371846 | CAGAGCTCTTGGAGCAAGAAGTGGTCTCCCTTACCGCATAGATCCATGCTTGGCATCCTT<br>CATGCAGTAGCATTCTTTACTACCACTGAAGTGAGCCAAATGGTTTAGAATAAATTTTTTG<br>GTTAGAGGAAGTGATATAATATTGGACATTTCTTCTACATCTTTGTTTCATACTTTCA[G/A]C<br>AAATGTCAATTTAGAATTCAAAGCCAACTTTAACACTGCTGGAAAAGCTACCCCTTTCGTT<br>GATTTGTCACACACTTGCCTCACTATGGTGGTCTATATATACAAGTCCCAAGATACCATTC<br>CATTTTCACAATATTGATGTCTTCATAAAGCATGTGGTCTCGTGTATTTAACGTTGA |
| >Gm03_40459321 | ATTTTCAATTTGTTATATGATTTGTTGTACTTGTTTTTGTTTATTTACTTATATTCCATTTTCA<br>TGGACTTTGCAGATTGTTTCTGACTCAATGAGAGCTACAAATAAGAAAATAAATGGAACAC<br>CCATCAAGATGCTCATAGACCAAGAAATGTCCAAAGAAGTTGTTTCCAAGCACA[C/G]CCC<br>ACCACCAAATGTAGTTGCAAAATTAATGGGGCTTGAAGCCCTCCCACAGGGTGAGCTATC<br>TGTGGAGAGAAGCCATAGAGGAGATTATTCTCAACATATGTGTGGTCATTCAGGGACACC<br>ATTCAACCACTGGAACCTGGAAGATAGGTTTATGGACAAGGAAATGCTTCATGAAGT |
| >Gm03_40462434 | TGGATCCATCATTGAGGGACAAATACGCCAATCTCAATGACAAGGAGCCTCAGCAGCAAC<br>TCCACGAGGCCAAGCGAAGGCAGAGGAGGTCCAATCAGAAGCTTGTATTCGATTGTGTG<br>AATGTCTCACTAATAGAAATTACTGGTTATGGATCAGAGAAGAATTACTTGATGGGTAGT[C<br>/T]GGTTGTGCAGTGGGAGCCACAGCAGGGTCCAAGTCCCAGAAGCTGCATCTCCCCCAT<br>TGGTGGACCTCATTGTGGCACAGATGAAGGAGTTAATATCTAGTGCTATGAGTTCTGTTTG<br>GGTGGTGGATTGTGGGGACAGTAACAGCCTGGTGGTAGAGAGTGTTGTCAGAAAAGAGG<br>TTG |
| >Gm03_40462640 | GTCCAAGTCCCAGAAGCTGCATCTCCCCCATTGGTGGACCTCATTGTGGCACAGATGAAG<br>GAGTTAATATCTAGTGCTATGAGTTCTGTTTGGGTGGTGGATTGTGGGGACAGTAACAGC<br>CTGGTGGTAGAGAGTGTTGTCAGAAAAGAGGTTGTGGGCAAAGGGTGGGTTGAGCTTAT[<br>G/T]AGATTGGAGATGGATATTTTGGTGAAGGAAGTAGAGGGGAAGCTGCTAGAAGAACTT<br>GTGGAGGATGCGGTGGTTGATTTGACAGGCAGGGCCTGAATGGTTGAAAACCCTGACAT<br>GGCTTTCCGCTTTGGCTTTGCTCTTTTTTATAATATATATTGTAACTCTACTATTGTTGTATT |

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| >Gm03_40585266 | TAAAGTGCATAACAATTGAGTATACCATCTAATAATGAAAATAACGCAAATAACATAATGCTTAAAGCAACGTTCATATCAGAAGGGAAAAATAGTTTGAATCCCATCCAACAAAAATCATGCGATTAAAATCCAATTAAAAAAGCATAAAGTAAAATAAGTTTTTAAAACAGGTATCT[T/G]GAGGAAAGCAACTACATTTAGTCCACTTCCTCAATCTTGGGGCCAGCACCACTTCCACCAGAAGGAGGAGCAGCATACTCATCCTCTGCTGCACCAGCACCACCCACGTCTGGACCAGCACCACCTTGGTACATCTTGGCAATGATTGGATTGCAGATGCTTTCCAATTCCTTCATTTTG |
| >Gm03_40585499 | TCCACCAGAAGGAGGAGCAGCATACTCATCCTCTGCTGCACCAGCACCACCCACGTCTGGACCAGCACCACCTTGGTACATCTTGGCAATGATTGGATTGCAGATGCTTTCCAATTCCTTCATTTTGTCCTCAAACTCATCTGCTTCTGCAAGCTGGTTGCTGTCTAACCACTGGATTG[A/C]TTGCTCAATTGCATCCTCAATCTTCTTCTTGTCAGCCGGGTCAAGTTTCTCACCAATCTTGTCATCCTTCACGGTGTTCCTCATGTTGTATGCATAGTTTTCCAAAGCGTTTTTGGCCTCAACCTTCTTCTTGTGCTCTTCATCCTCAGACTTGTACTTCTCAGCCTCTTGAACCATCTT |
| >Gm03_40586108 | GTCAGAGTATGTTGAGAAAACTTGTTCCTTCTTTGTTGGAATTGTAGTGTTCCTAGGGATCAGGACAGTCATCACACCACCGGCAGTCTCCAAACCAAGAGACAGAGGGGTGACATCCAGGAGGAGAAGATCCTGAACCTTCTCATTGCCCTCACCACTTAAGATTGCAGCCTGAACAG[G/T]CGCACCATATGCAACAGCCTCATCGGGATTAATGCTCTTGCAAAGCTCTTTTCCATTAAAGAAGTCCTGCAGCAGTTGTTGAACCTTGGGAATTCTGGTAGAACCACCAACAAGGACAACATCATCAACACTTCTTTTGTCCATCTTAGCATCCCTCAAACATTTCTCCACCGGCTCCAT |
| >Gm03_40587775 | AATAAGTATAAAAAAAAATACATAAACAGAACAATCGAATGGAAAAGATAAAATAATTTTGTTAAGAGAGGTTACCGAAGACGGTGTTGATGGGGTTCATGGCGACTTGATTCTTGGCCGCATCACCGATGAGACGCTCGGTGTCAGTGAATCCGACGTAAGACGGCGTGGTTCTGTTCC[T/C]TTGGTCGTTGGCGATGATTTCAACGCGGTCATGTTGCCACACACCGACGCAAGAGTAGGTGGTTCCGAGATCGATTCCGATAGCAGGACCCTCTCCTTTTCCGGCCATGGTTTCGGCGTGCGGCGTAGAGAAAGAAGAGATCTAAGAAAGAGGAAGAAGAAGATGATAACCACAGCGATA |
| >Gm03_40600203 | CTACGAAAACGCACAATTGGTATTGGCAGGGTAAATTGGTGAAGTTGAACAAAATGAAGCTAAGAAATCACTGATGGAAAGCGGAAATTGGGGAACGATCTGATCCGTGAGCGAAAGGAAGGAAATCAGAGACGAAATTGAGAGTGGTGTGGTTACCTTTGGACGCGGTGGCAGTGGGC[G/T]TGACTTTTCCCTCTGATGAGTGTTGTTGTCGTGCTTCCTAGGTCTCGCTGCGGTGTTCCCCCACAGTCCCTCCAACACAAATAAGAAGCAGAATAGTGTTTACTTAGTTGACCATTTTGCCCCATCTCTATTTCCCAAATTTAGATAATAAGGTTTAAATACCATTTTATTCTTTTAAATT |
| >Gm03_40600256 | ATGAAGCTAAGAAATCACTGATGGAAAGCGGAAATTGGGGAACGATCTGATCCGTGAGCGAAAGGAAGGAAATCAGAGACGAAATTGAGAGTGGTGTGGTTACCTTTGGACGCGGTGGCAGTGGGCGTGACTTTTCCCTCTGATGAGTGTTGTTGTCGTGCTTCCTAGGTCTCGCTGCG[T/C]TGTTCCCCCACAGTCCCTCCAACACAAATAAGAAGCAGAATAGTGTTTACTTAGTTGACCATTTTGCCCATCTCTATTTCCCAAATTTAGATAATAAGGTTTAAATACCATTTTATTCTTTTAAATTTGGCTGATTGTTTTTTAGTATTTAAAAAAATATATTTTTATTAGTCTTTCAAA |
| >Gm03_40628097 | ATTTGCAAATAGAATGACGAGGAGGATTGAGGACTTCGTGTCCACGTTGTTCCTTCCCTTGTACTTTGCTGCCAGTGGTTTGAAAACTGACGTGACTAAGTTACGAAGCGTGGTGGATTGGGGGCTTCTTTTGCTGGTTACGTCCACCGCGAGCGTGGGGAAGATTTTGGGAACGTTTG[A/G]CGTGGCGATGATGTGCATGGTGTTGGAAAATAAAATAAAATGAAGGAAAATAAATATGAAGAAGATGCACAGTCTTGAATTAAATAACAAAATAGCAGTAGCAAATTAAATTTAATTGACAACACATAAATAATGCATTATATCACACAATGAGCACAAGGAAAAATTAAATTAAGGGAA |
| >Gm03_40676583 | CCTTTCTAAAATTTCAGTATTTTCTCATTGAGCAAAAGCATACATTGCTTACAAACTATACCTTCAAACTTTACTAACAGCCAAGTAATATAAATCAGATAACTTACAGGCAGAGATACAGAGCGTGAGTAAGTTTGATGAGCAGAATGCTCATAGAGTGGTTCTGTGACTGAAGTATC[G/A]GCCTCCTTATCAGACGAGCTTGAAGGCAACATGGTATTAGGAATTGGAAAGGTTGCAGATTTTTTCAAGCACGCCATATTTACTTTTGTCGCTTGATCTTTCATTGCTTTACATATTTTTTCCTCATTCACATTATAGATGTCACTCCCCTCAGAAGCAAGTAAAGATTTCTGAGCATCT |
| >Gm03_40676856 | TGATCTTTCATTGCTTTACATATTTTTTCCTCATTCACATTATAGATGTCACTCCCCTCAGAAGCAAGTAAAGATTTCTGAGCATCTTGAATGTGTAATGACTCACTAAAAGTCCTTCCAAGATTACTTATGAAGTTGTCGTCATGCACAACATTGGTATTAGAGCACGTGTCCATCAA[C/T]TGCATCAGGTACTAAGAGGCAACTAAAAAAACAACAATCAGATCAATGAGAATAAATAACACAATTATCACTAATCTACATAATAAGCATTAAAAATTAAAACATTCCACAGTTATGTTTCATTATTAATACATTGTGGACCAAAATTTAAAAAAAAAAGTTTTAAAATGATGACAGATG |
| >Gm03_4 | CTTCATACATTACTAACATAAGTCGGAAAGCAAATGATACCTAAGCTTGAAAGTTGAACAA |

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| 0678154 | GATTACCAAAAAAATATACCTTATAAAACGACGTTTGGAGCTGCAACTACAACACTATCAA<br>AACAGGAGCAGAGAATAGCAACCAAACACAGAAAGAACAACAATAGCAAACCCTCGA[C/T]<br>ACCGATCCGCTGACGAATTAATCACAGCTCGCTCAGAGCAGAACCAACAACAACGACGAC<br>CAAAAGAGAGCGAGAAAAGAAAGAGAAGGTGGAAGAAAACGAAAGACCTAGTGTTAACTA<br>AGATTACCACGCCGATCACTTTTTTCAAGATTTTTCAGACGATGAAAAGAGGATCCACCA |
| >Gm03_4<br>0683015 | CCACGCTCTTCTTTGTTCTCTTCTTCTTCTTCTCGCTTCCTCCTTCCTTCGATATCTTCTTCT<br>CGGCCTTGGGCTTCTTCTCCGCCGGAGCCTTCTCTGCGGGCTTTTTCTCCGCGGGCTTCT<br>TCTCGGCCTTTGGGGGAGCCATTGGTTGGTGAAGAGGGAAAGGAGAGGGTCGGTTT[A/G]<br>TTATGATGGGAGAAAAAAACTGAATTAGATAGAACGAGTGAAGGAACAGAAGAATGTGTG<br>TGTATATATAGGAAGAGAGAAAGCTTTTGATTGGAAGGGGTTGAGTCACGCGGATCGGTG<br>ACGTGGCGTCTTGGATTGACATTGCGTTTTTTCAGCGCCCAAGGATTGCTTCCGTCTTTT |
| >Gm03_4<br>0685721 | ATCTACCATCAAAACAGCTAGCCTTAATGAAAAGGCAAAAGTAAAAAATTGCTATAAGATT<br>AAAAAACTGAGCAAAGATAAATGTATTATTGTAGAGAAATCTAGGTCTCGCATCCTTTACA<br>TGTAATTTAAAGCTCAAACAAATTCCTCGATGCGGGCTTCTGAGATTTAGACTCTGA[C/A]T<br>AGCAGGGGAAATCAATCTCTGCTGAACACGGGAAATGAGATGTTGGCTATAACCTCTGCT<br>CGCAACACTTTGAACTTGAATTTCCGATGAAGAATCATGTCTTATCTAGTACCTGTCAGGC<br>TGTCACAGCAGGGGAAAACATGAGACAAGTCAAACGGGTAATAAAAAATAAAAAATGT |
| >Gm03_4<br>0785291 | GGCCTTACCCATGGATTCTCTTCCCAAATTGCGCCACCCTTCTCCATTTCCCACTCCCTTA<br>TCCTCTTCCCTCTCCTTCCGCTCTTTACCGCCACCCCATTTTCCTTCGTCGTCGTTTAGGT<br>TACCCTCCATCAGAGCCTCCTCCTCACCCTCCCAAAACGACCCCGCTTTTCGCACCC[C/T]<br>AAGAAACAAGCCCTCCCTCCCCCCCCTCCTCCAAACCCTAACCTCCTTCCTCTCCCCCCT<br>CCTCGAAACCACCTGCATCGTCATCGCCGCCGCCGCCTTCTTCTTCATGCGCTTCCACCA<br>CACGCCCGCCGTCATCGCCGCTCCGCTCACTTCCCCCGCCGCGGAAACCGACACCGCCT<br>T |
| >Gm03_4<br>0785299 | CCATGGATTCTCTTCCCAAATTGCGCCACCCTTCTCCATTTCCCACTCCCTTATCCTCTTC<br>CCTCTCCTTCCGCTCTTTACCGCCACCCCATTTTCCTTCGTCGTCGTTTAGGTTACCCTCC<br>ATCAGAGCCTCCTCCTCACCCTCCCAAAACGACCCCGCTTTTCGCACCCCAAGAAAC[T/C]<br>AGCCCTCCCTCCCCCCCCTCCTCCAAACCCTAACCTCCTTCCTCTCCCCCCTCCTCGAAA<br>CCACCTGCATCGTCATCGCCGCCGCCGCCTTCTTCTTCATGCGCTTCCACCACACGCCCG<br>CCGTCATCGCCGCTCCGCTCACTTCCCCCGCCGCGGAAACCGACACCGCCTTCACCCAG<br>G |
| >Gm03_4<br>0823593 | TACATCTTAATTCGAAAATCTATCATCGACGAAGGAATCTACCGCCTCGGCGTGGAGAAA<br>CTTAGCTCCTCGCGCGCTAACAAGATGGATTGGGAAGTTCTTGATTTGAAGATCAAGAGT<br>TGGTTAGAGGCGACAAGGATTTCCGTTAGAACACTCTTTAACGGAGAGAGAATACTCTG[A<br>/C]GACCACGTCTTCAGTTACTCAGATTCCGTCAGAGAATCATGCTTCGCCGAGATTTCAAG<br>AGACGGTGCCGCTCTCCTTTTCGGATTCCCTGAACTCGTTGCCAAAACAAAGAAATCTTC<br>GCCGGAGAAGCTGTTCCGCGTGCTCGATATGCATGCTGTGGCTTCCGAACTGTTGCCGG<br>AG |
| >Gm03_4<br>0874888 | CCTGGGGTGACCGTACAATATCTGAGAACCCTTTTCTCTGTTGCAACTTCTAGACCTCACG<br>AACTCAGCATCCGATTCCGGCCACTTATAGAGGTTCACGTAGGAAGCCCTCACCGGAACA<br>CGTGGGTCACGTGCGTCGTTGATGCAGTTTGATATGCATACTGAGCTCATCTTTTTTT[C/T]<br>CCCCTCAGTTTCTCAGGTGAAACTGTGATAGCTAGTGGGAGTTTGTGTAGAAGGGTATAA<br>ATTGAGAATATTAAAAAAAGAAAAAAAGAAAAAAGAAAAGGAGAAAAAACTTAGATTGCAA<br>GAAAAGGGTGTGGGAAAGGAAAGAAGGACTAATTGAATGTATTTATAGTGGGCATTATT |
| >Gm03_4<br>0889026 | CTCCTAGGGAGGAAGTATACCAAGCAATTGAAGACTGCAGAGATGCTGGAATTCGTGTTA<br>TGGTTATTACTGGAGACAACAAGAACACCGCTGAAGCTATATGCCGTGAAATAGGTGTAT<br>TTTCTCCAGATGAAGACATTAGTTCTAAAAGTTTAACAGGTAGAGATTTTATGGAACTG[G/A<br>]ATGATAAAAAGGCATATCTGAGACAGCATGGCGGGCTTTTGTTTTCAAGGGCTGAACCTA<br>GGCACAAGCAAGAAATTGTGAGGCTGCTCAAAGAGGAAGGGGAAGTGGTGGCCATGACT<br>GGGGATGGTGTTAATGATGCTCCTGCCTTGAAGCTTGCAGACATTGGTATTGCAATGGGC<br>A |
| >Gm03_4<br>1007691 | CAAAAAAAGAAGCCCACTTAGAAGGACTCTTTAAATATATTTATATTCAACGTATAAAACCT<br>TTGATGCTGTTCTGCCAAACCCCAAACCCTAGTTTTGTCAGTAGCACACTTCACCCATGGC<br>AGTAGCAGCAGCTCGCCCTATCGTCTCCGTCCAAACCCTAGAGGGCGATGCAACCC[C/G]<br>TACCGTTCCTCTTCCCGACGTCATGAAAGCCTCCATTCGGCCTGACATCGTCAATTTCGTC<br>CACTCCAACATTTCTCGCAACAGCCGCCAACCCTACGCCGTCAGCAAGCGCGCCGGCCA<br>CCAAACCTCCGCCGAGTCCTGGGGCACCGGCCGCGCCGTCTCGCGTATCCCGCGAGTC |

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| >Gm03_41007937 | CAACATTTCTCGCAACAGCCGCCAACCCTACGCCGTCAGCAAGCGCGCCGGCCACCAAACCTCCGCCGAGTCCTGGGGCACCGGCCGCGCCGTCTCGCGTATCCCGCGAGTCCCCGGCGGTGGTACCCACCGCGCCGGCCAGGGCACCTTCGGAAACATGTGCCGTGGCGGCCGCATGT[T/C]TGCTCCCACCAAGATCTGGCGCCGCTGGCACCGCAAGATCAACGTTCAACAGAAGCGCCACGCCGTCGTCTCCGCCATCGCCGCCTCCGCAATCCCCTCGCTCGTCCAGGCTCGCGGCCACCGCATCGAGTCCGTCCCGGAACTCCCCCTCGTCGTCAGCGACACTGTCGAAAGCGTCGA |
| >Gm03_41008442 | TACGGAACAGAAGGTGCTAAGGCCATTAAAGCCTTCAGGAACATTCCCGGTGTAGAGGTGGCAAACGTTGATAGGCTCAACCTTCTGAAGCTGGCACCCGGTGGCCACCTTGGAAGGTTCATTATTTGGACCAAGTCCGCATTTGAGAAATTGGACTCTATCTATGGATCCTTCGATAA[G/C]GCCTCCGAGAAGAAAAATGGCTACTTGCTTCCCAGGCCCAAGATGATCAACTCTGACTTGGCCCGTATCATTAACTCCGACGAGGTCCAGTCCGTGGTCAGGCCCATTAAGAAAGATGTTAAGAGAGCACCTCTCAAGAAGAACCCTCTCACGAACCTCAATGCGATGTTGAAGCTCAAT |
| >Gm03_41008459 | TAAGGCCATTAAAGCCTTCAGGAACATTCCCGGTGTAGAGGTGGCAAACGTTGATAGGCTCAACCTTCTGAAGCTGGCACCCGGTGGCCACCTTGGAAGGTTCATTATTTGGACCAAGTCCGCATTTGAGAAATTGGACTCTATCTATGGATCCTTCGATAAGGCCTCCGAGAAGAAAA[T/C]TGGCTACTTGCTTCCCAGGCCCAAGATGATCAACTCTGACTTGGCCCGTATCATTAACTCCGACGAGGTCCAGTCCGTGGTCAGGCCCATTAAGAAAGATGTTAAGAGAGCACCTCTCAAGAAGAACCCTCTCACGAACCTCAATGCGATGTTGAAGCTCAATCCCTATGCTAAGACCGC |
| >Gm03_41171468 | TTCCGCAAAGAACCCTCACCCTTTATTGAAAGGCCAGTACCTCTCAATGTGGGTGTCATAGTACAATAATGATCCCAGGGAATATATTGACAATCAATATTTGGCTTCTCCTGCCACAATTCTGAAGATATAGGAAGATCAGTTGAACTCCCAGCATTAAAGTATCTACTAGTACTGCC[C/T]CCCTCATAGACTGAAGGAATTCCAGGGCTCTTACGCTTGTGATGCCCTTGTCCACTTCCCATTGTAAGATCAATAAAACCACCATCAACATGAAATGTTTGTCTGTCATAATTGGAGGAAGAAGGTTGGTGTGCATAATTTTCCAACGGTATAAACAATGATGGTCCAGCACTAGACAAA |
| >Gm03_41185505 | CTGGCATGCAAATGTTCAAAATTAATGGGGTTATACCTTTGTCCAATGCATGGTACAATGTATTATTGCAGGTAAAGGGGCTTTCATCACAAGAATTTGCTGCCCGTAATGATTTGGCTCTTGCATTGCCGGATAGGATTCAAGCTATCCCAGATGGGACCCCTGCAGCATCCAAACAA[C/T]GTGGAAGTTGGGCAGCTTCAGCCTCACGTCCTGGAATTAAATTTGATTCAGGTAATTGAAATTATCCATGTCTCATAGAAGTTTATCAATGGGAGACTTTTTAATTGATGGTCATCCATTCATTTTTGTGTATCTTGTCAATTCCAGATGGGAAATTCGATGATGAATACTTCCAACAAA |
| >Gm03_41223681 | TATCAGCTATTTGTGAGGCTTTGAGGAGTTTGATGAAGGTTGTGAATTGTCCTGCTTTCTCAAGCACTTGGGTGATGTTGGTGGGTCCCGCTGGTGCCGGTGCTACTTGGGCTGAAATTGTTTGGATGAAGATGTTGAGGAAGAGGAAAGGGAGGAAATTGAATAGCTTTGTCATTGGT[A/G]TTCCTTGTGAGTGAGGAAATTAAGAAGAGAAGACTAAGATGTTTGTTACAAGTGGAAGGAAGAGATGTGGTGTCGTAATATATATTAAGAAGAGGGTGCATGGAAATTTGATTGTTTAAAAGGTTAGGTGAAAGGTTGCAATTAGTATAAGGTAGCAAGAGGCCCTCATGCAATCAATTT |
| >Gm03_41228284 | TAGGCCTTGGTTTGAGTTGTTCAGCTGTGAATTGATTCTATCAGCTATTTGTGAAGCTTTGAGGAGTTTAATGAAGGTTGTGAATTGTCCTGCTTTCTCTAGAACTTGGGTGATGTTGGTGGGGCCCGCTGGTGCTGCTGGTGTTTGGGCTGAAATTGTTTGGATGAAAAGGAAAAGGA[G/A]AAAATGGATTAGCTTTGCCATTTGTGTGAGTGAGGAAGCTAAGAAGACTAAGATTTTTGTCACAAGTGGAAGAAGGGGATGTGGTGTTGTGTATTTATATTATATGGTGTTAAGGTTTGAGGGTGAGTGGAAATTAGATTGGTATAAAAAGTTAGGTGAAAGGTTGCAATTTGTATAAGG |
| >Gm03_41228321 | CTATCAGCTATTTGTGAAGCTTTGAGGAGTTTAATGAAGGTTGTGAATTGTCCTGCTTTCTCTAGAACTTGGGTGATGTTGGTGGGGCCCGCTGGTGCTGCTGGTGTTTGGGCTGAAATTGTTTGGATGAAAAGGAAAAGGAGAAAATGGATTAGCTTTGCCATTTGTGTGAGTGAGGA[A/T]GCTAAGAAGACTAAGATTTTTGTCACAAGTGGAAGAAGGGGATGTGGTGTTGTGTATTTATATTATATGGTGTTAAGGTTTGAGGGTGAGTGGAAATTAGATTGGTATAAAAAGTTAGGTGAAAGGTTGCAATTTGTATAAGGTGGCAAGAGGCCCTCATGCAATCAATTTTTCTTTCTA |
| >Gm03_41234338 | GATGATTTAGTTCAAGTTTGGAGCATGGAAGATCGCAAGGTTGTGGCATGGGGCGAGGGACATAACTCATGGGTAAGTTGCCTGACAATTTTTAGTTGTGTGCTTGTAGCAAACTTTGCTACCGTAGGGTTAATGTAGTGTTTGTATCAAATGCCATGATCAGGTCAGTGGAGTTGCTT[T/C]TGATTCATATTGGACATCACCAAATTCAAATGACAATGGAGAGACTGTTACATATCGTTT |

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| | TGGTTCTGTTGGTCAGGTGCTCAGAAAAATGTTTCATTATAATTTTTACTTTTTCTTTGTGT<br>AGCTTTTCATTCTAAGTAAAACTCATTGGTATACCTAACATGGATCTGTGGTAGCTTT |
| >Gm03_41274006 | AATATACACTGACAAAGTGATCCTCAGACCTCTATTGAAACGGTGATACATATAGGCATGC<br>CTATGAATTCTTAACTGTTTATTTTTAAAAACTCAGAAATTATTTTTAATACATGGCAGCAAG<br>GTACCACGTATTATAGCCAACAAAAAAGCAAGAATCTATCAGCGCCAGGATCTAG[G/C]AT<br>CAACAATAAACACAATATAAATGAGATATACTGTTCTGCATAACTTAAGAGTTCCCCAGCA<br>CCAATATTTCTCTAATTCTTCACACTTGTTACATGCTTGAGGAGCATGGAGACAACATCCC<br>CTGATATCCTCTCAGCCTCAGTTTTCAGGTGATGAATCTTTTCTTCTGTCTCTTGC |
| >Gm03_41275788 | GAAAAGGAAATCGTGAGAAACGGGAGCGAAAACGAGTTGATTATAGTAAGAAAGCGCGT<br>GAAATCCGAAAAGGGCTGCATTGGCGTGAAAATGGTAGATCTAAAAGTAAAGGAGAAAAC<br>CGAAATAAAGAGATTGGAAGGTACCGTAGCAATCGGGTCTGTGTTAGATTCAGAGAAAAC[<br>C/T]AGACACAGTGTCTCTAACGAAAACTGGAGGACTGCTTCGCTGATTTGCTTTTCGTCTT<br>CGCCCAATCAAATCAACACAACCCACCTATTTCTTTAATAATAAATAAATCACACATATATA<br>ATTTAATTTTACTCACAAACCATATTCTTTCGCAAAGTGTGGACATAAATAATAATGACA |
| >Gm03_41982791 | TGGATATGAGTGGAACAAATATAATCAGACTCACTATGATCATGACAACCCACCTCCAAAG<br>ATAGTCCAAGGGTACAAATTTAATATTTTCTACCCTGATCTTGTAGACAAGACAAAAGCCC<br>CAACCTACACCATTGAGAAGGATGGCAGCAATGGGGAGACTTGCATTATAAGATTCC[G/A]<br>CGCAGGGCCACCATATGAAGACATAGTAAGTCTATTATCCTTTAATTTTATGAAGGATTTTT<br>AATTTTCAATCAATTTACTTATTTCCTTATTTTTTCCATGACAGGCTTTCCGCATTGTTAACA<br>AAGAATGGGAGTATTCTCATAAGAAAGGTTTTAAGTGTGCATTTGAACGTGGAAT |
| >Gm03_42074261 | AGGCCCACTACTCTGCCGTTTGGGGAGCATTCCACGCCGCGCCACGCGGCGGAGCAGG<br>CGTCGGCGCCGGTCCAGTTGGTGAGGAGGTTGCCGTGGGTGTCGGTTTGGAGACGGAA<br>TTCGGTGAGAGCGAGTGTATCATTTTGCCCTGCAGCCTCTGCAGCAACACAGAGGATGCA<br>CAA[C/T]CACAAGGCCAGTGCCAGGAATATGGGACAATGACAAACTTTTTTCATGTTATGG<br>TCTGGGAAGGGAGGGAACGAGTGTGGTGGTGTTATTAATTTAAAAGAATTTCAGATTTGG<br>ACTGAGAAGGAAAATGTGTCATGATTGGAGAGAGTGTGTGATTGAGGAAAAGTGTTGAAG<br>CTGTTA |
| >Gm03_42224757 | CGTATAAGAATCTCGAATCCGCAAGTTTTAGATCCATTGAAATGAGCAATAGTAACAGTGC<br>CAACGAATGACGCAAGGGGTGACGCATGTGCTCTTAGTTGACAATTGGTGGGGTCCATCT<br>AATCTAATGTTTGTTTTCTGTTGGTGTTGAGGTCCGGTGAAAAGGTACCGGATTGTGT[A/T]<br>GGTTTTCTCACCAACCAGGGGCGCAACTCTCGCAAGTGGCGGTTTCAAAAACATGACTTC<br>ACTACAGTGTTATGATCATAGCATGGTAAAGTCAATCAGCTTCATAGACTGAACTTAAACT<br>AAATAAACATTTGTCGGACGTGTCTTTTTTATATTTCAATTTGACTTGAAACTGCCGCC |
| >Gm03_42224778 | CAAGTTTTAGATCCATTGAAATGAGCAATAGTAACAGTGCCAACGAATGACGCAAGGGGT<br>GACGCATGTGCTCTTAGTTGACAATTGGTGGGGTCCATCTAATCTAATGTTTGTTTTCTGT<br>TGGTGTTGAGGTCCGGTGAAAAGGTACCGGATTGTGTTGGTTTTCTCACCAACCAGGG[C/<br>T]CGCAACTCTCGCAAGTGGCGGTTTCAAAAACATGACTTCACTACAGTGTTATGATCATA<br>GCATGGTAAAGTCAATCAGCTTCATAGACTGAACTTAAACTAAATAAACATTTGTCGGACG<br>TGTCTTTTTTATATTTCAATTTGACTTGAAACTGCCGCCGCCGCCGCCGCCGCCGCCGCC |
| >Gm03_42243466 | GCTCAAGATCGGCCCAAACGAACCATCCGAGCTGGCTATCCATGAAAATGCCTACGGTCT<br>TGCCCGATATGCCGTCATATGCCAGGAGAATGGTCTGGTACCTATTGTAGAGCCAGAGAT<br>CCTGGTGGATGGACCTCATGACATCAACAAGTGTGCTGAGGTGACCGAGCGCGTTCTTG[<br>G/A]AGCATGCTACAAGGCTCTAAATGATCACCATGTTCTGCTTGAGGGCACTCTGTTGAA<br>GCCCAACATGGTCACCCCTGGTTCAGAGTCTAAGAAGGTCACCCCAGAGGTGATTGCTCA<br>ATACACTGTTACAGCTTTGCAGCGAACTGTTCCCGCTGCTGTTCCGGCCATTGTCTTCTTG<br>TC |
| >Gm03_42243699 | TGAAGCCCAACATGGTCACCCCTGGTTCAGAGTCTAAGAAGGTCACCCCAGAGGTGATTG<br>CTCAATACACTGTTACAGCTTTGCAGCGAACTGTTCCCGCTGCTGTTCCGGCCATTGTCTT<br>CTTGTCTGGTGGGCAGAGCGAGGAGGAGGCAACCCTCAACCTCAACGCCATGAACAAG[<br>G/A]CCCAGGGAAAGAAGCCGTGGTCCCTTTCTTTCTCTTTTGGAAGGGCACTTCAGCAAA<br>GCACTCTCAAGGCATGGGGTGGGAAAGATGAAAACATTAAGAAGGCTCAGGATGCTTTAT<br>TTGCCAGGTGCAATGCAAACTCACATGCAACTTTGGGAACTTACAAAGGTGATGCTACCC<br>TTG |
| >Gm03_42672131 | CCCCAAAACAAAAAAAGACAATTGCAGATCAATACGCAGCGAATGTAGAAGAACATGGAA<br>AATTAAAAATAAAACTAAAATTAAAATAAAATTGAAGTGGAAAGTGAGAGAAACACTAACTT<br>CTTCAAATCCGGTGGTTGCCCTGATCTGCTCATTGTGAGGAGAAGAGATCACAGATG[C/T]<br>CAACGAAGGAAGAAAATTTGGTTTCGAAGTGGCAAAACCTCAACTACGCTCACTCAAGAC |

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| | CCTAACATCGGAGGCTATACTCTTTATCGTTTAAAGCCAGGCCCAGTATACGAAACGATTG<br>CTCAAAGGCACATGGATCTGATAGCATTAGTAAACAGCCAGGACCAAAATATGGGAAAG |
| >Gm03_42701398 | GGATTGGGACGAAATGGTTCACCTGTTGTGCATCATGAGCAGCTCCAAGTCCTTCACATT<br>GTGAACAACAAATTTCTTGAAACCATTAGGGAGATAGTGGCGGGTCTTCTTGTCTGAACCA<br>TAACCAATGTTTGGCATCAAAGTGCATCCCTTGAACTTTCTCCTAACACGAGAATCTA[C/G]<br>GCCCTTTGGCCTGCGCCAGTTTGTCTGTTGAAATAGTATAATAAAAAAATGAGGTCAGAAA<br>ATAAGAACTGATTGTTTATACACACTAGGTTAATAATCTTATTTAGGATAATAATTTCATATT<br>CAATCTTAGCCGAAAGATGGTGATATTTAGGATAATAATCATAGACAATCGGCAAA |
| >Gm03_42701407 | CGAAATGGTTCACCTGTTGTGCATCATGAGCAGCTCCAAGTCCTTCACATTGTGAACAACA<br>AATTTCTTGAAACCATTAGGGAGATAGTGGCGGGTCTTCTTGTCTGAACCATAACCAATGT<br>TTGGCATCAAAGTGCATCCCTTGAACTTTCTCCTAACACGAGAATCTATGCCCTTTG[T/C]C<br>CTGCGCCAGTTTGTCTGTTGAAATAGTATAATAAAAAAATGAGGTCAGAAAATAAGAACTG<br>ATTGTTTATACACACTAGGTTAATAATCTTATTTAGGATAATAATTTCATATTCAATCTTAGC<br>CGAAAGATGGTGATATTTAGGATAATAATCATAGACAATCGGCAAATTATTGAAA |
| >Gm03_45026222 | CCTTTGGCCCTTCATCATAAAAAGTGTTGTAATTGCTTCCTCCTCTTTGCTTGTTGTTGGAT<br>TTGAAAATGTTGAAAACTGAGAAAAAAGAAGATTTCCTTTGCCTGTTTTTGCCACCCATGG<br>TTATGATTGTTGATTTCTTGGCTATGAAAGACTATAGTGTCACTTTTAGTGACTAG[G/A]TAT<br>AGGAACTTGTAGTATTTGTGGTGTTGGGTTAGAACTTCGAGGCTATGGGCCTCTCAATTTA<br>TAGTACAAGTTAGGCCACTTCTTTTAACTGAGATTAAGGGTGGAGAATCTGATTCAAACCA<br>GTGTTTATGGTCCAATTAAAGCTGACATGGAACATTTGAAACTGTTCCATTTCAT |
| >Gm03_45416367 | GGTTGCTTGTTATAGATGTTGATGCTGCCCTACCGTTCAATATTCCATTATCCATAGGTGG<br>ACTGGTTCCCCACTTACCTTCTGATTCACTAGGCTCTATCACTTTCACGGACCCATCTGTC<br>AATCCAACAGCAAATTGGTTGGGTTCCAGTGGATGAGCCGCAATGGCAACAGGATAC[C/T]<br>CAGATTGATTCCTGCAATATAGTATACCACAATATGGATCACCAAATGGAAGTAAGACTTC<br>ACGATACTACATCCTTAAATAAATGCTCAATGTTTAATACAATAGAGAGTAAAATTGGGTCT<br>GATCTGTTGGGCAGAAACTTACCCGCTTAAAGCTGCTGGAGGTGAAAAGTATGTGGA |
| >Gm03_45503654 | CTAAATACACAAATAGAAAATGTTTTGAAAAGGAGCAGGGAGTGCAACATTATAAAGAGTG<br>GCCACTCAATAGTCAATAAGGGGAATCAAAAAATCAAATGCTAGTTTTTTGTAATACACGT<br>CAATGTAAAACATGGGAGCCACGATATGTTATCAGAACAGAAATATCATAAAAACTG[C/T]C<br>ACCGACGCCTAGAGCAAACAGTTTAATTTCAGAAGTGAACAATTGTAAAAAAAAAATAGAA<br>CAAAGTTATATTATATTTCTTAAACTCTAAATCCTCTGCTGTTCCTCCTTCCTCTAGCCCTC<br>TCGAACTTTCTTCCCTTTGCTCGTACATAGGGCTTGGTATGGCTGTGTGGCACACC |
| >Gm03_45503673 | ATGTTTTGAAAAGGAGCAGGGAGTGCAACATTATAAAGAGTGGCCACTCAATAGTCAATA<br>AGGGGAATCAAAAAATCAAATGCTAGTTTTTTGTAATACACGTCAATGTAAAACATGGGAG<br>CCACGATATGTTATCAGAACAGAAATATCATAAAAACTGTCACCGACGCCTAGAGCAA[G/T<br>]CAGTTTAATTTCAGAAGTGAACAATTGTAAAAAAAAAATAGAACAAAGTTATATTATATTTC<br>TTAAACTCTAAATCCTCTGCTGTTCCTCCTTCCTCTAGCCCTCTCGAACTTTCTTCCCTTTG<br>CTCGTACATAGGGCTTGGTATGGCTGTGTGGCACACCAGGAGCAGGACCAAAGTGT |
| >Gm03_45516926 | AGGAGGAATGAACAATACCAAAAACAAACGCAGAATGGCTTATTAATTATAAATATACATT<br>ACATGATAAGGAGTAAAGATACACCGCTACTCTACCCTTACACTTTCTACTTACGATTTGG<br>CAACCACTACGCAGCTTACTTAAGTAAAGACTTAAAGAAGCTAAACCAAAAGCTACC[A/G]<br>CGCATGAACTTGGCAGAACTTCCTTGCAGACATTCAGACATTATACATGCACACAAAGACT<br>AAACAAAAATGAATACAGCAAAGGCCAAAAAAGCTGCTACATCCTCAGCTTTCAGGTACG<br>AGAAAATGCGTCACACATCGAAAGGAGAAGAAGGGCCTGATCTGTTCTGCCCTCTCTTC |
| >Gm03_45516951 | AAACGCAGAATGGCTTATTAATTATAAATATACATTACATGATAAGGAGTAAAGATACACC<br>GCTACTCTACCCTTACACTTTCTACTTACGATTTGGCAACCACTACGCAGCTTACTTAAGT<br>AAAGACTTAAAGAAGCTAAACCAAAAGCTACCTCGCATGAACTTGGCAGAACTTCCT[G/A]<br>GCAGACATTCAGACATTATACATGCACACAAAGACTAAACAAAAATGAATACAGCAAAGGC<br>CAAAAAAGCTGCTACATCCTCAGCTTTCAGGTACGAGAAAATGCGTCACACATCGAAAGG<br>AGAAGAAGGGCCTGATCTGTTCTGCCCTCTCTTCTCGTACGCATCAGATCCCGACCTTC |
| >Gm04_4053359 | ATTTGTATGCTAATGTGTTTCTTGTATTGACATAGGATATCATTCGTCTTCCAAGGTTGTTT<br>CGGTTTCTCCAGCGACCATTGGCAAAATTGATTTCTGTACTTCGGGCTCCTAAATCCAAGG<br>AAGGGTATGCTGCTATTGGTGGTGGCTCTCCTTTACGAAAAATTACAGATGACCAG[A/C]T<br>GGAGTTTAAATTTTTTGGTTTTCCCATTATCTGCTTTGTGGAGCTTTTATCTTTCCGCAACA<br>TGAATCTTTTTTGGCCTTTTCCTGATACACTCAATAAAAATTCTCTGTATTGGTAATGTGCT<br>GGAACTAATGAAGCTGGTTCGTTGTCCATGAGCAGGCACTTGCAATTAAAATGGC |
| >Gm04_5 | ATGCCTCAACACGTAAAAATGAAAAGAAAAAAAATAACACCCCCAAAACAAATCTAAAAAA |

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| 032005 | TCACGAGCAAGTGGTTAAAATAATAAGATTTGAAGAGAAGAAAGAAGGGGAAAAGGCGTT<br>ATTACTTCTAGGAGTGCGAGGAGCTCCTCCACTGACGAAGGAGGATCTACAAGCTTGT[T/<br>C]ACCGGCTTCGAGAAGTTGTTCTTCCAATTCTTTATCTGCTCCCGCCATTGGATTTGGTG<br>GTGCCGTCTCTGAGTCTCTCTTCTTTCTGATCTAACACGGAATCGCGCCACACACTCTCTT<br>CTGTTTCACTCCATCGATGCCCTGAAAACCTCCAATCGAATCGATTTGAGATGGAAAGAG |
| >Gm04_4<br>4787569 | GGTGGGGATAGGCGAAGGAGGTGGCGACTGAGTAGTGAATAGGGTTTTTGATTGATTGA<br>TAGCAATAATTGGTGTTAGCGAAGCTTGAGAATTGAGATTTATGGGTCGCAATCGCAGTC<br>GCAGTCGCAGTGTGTCACGCTCTCCTTCCAATTCCCGCAGAAGAAGGTACTCTCCATCCC[<br>G/A]TGTTTCTCATCGCCACTCGAGAACTTCCAGGCGCCGCTCTCCTTCCCACAAGCGCCG<br>TCGAAGGCACAGAACCTCTTCCTCCCCCTCTCTTTCACGCAGCCCCACTCCCAAACCCAA<br>GAAAGATCAAAACAAAAGGTAACCAATCATAACCATTCTTTTATTTGCCTGGATTTTATCTT<br>A |
| >Gm04_4<br>5061509 | AGAAAGAGCTGTTCAACTTTGTGATGAGTCACTTGGATGCAGCCACACAAGATGAAGAAG<br>GGTCTGCACCTGTTTTGTTTCACCCATTTGGGAGCTACCTTTTTGTTTCATCAGATGGAGC<br>AGTGTGTGTGGATTGTGCAACTTCTGTTATAAAGATGTTGCATTTGATGTTTGCATCA[C/T]<br>TTTCCCCAGCTTGTAGTATTGAGGACCATCTAAAGTATGGAGACTATGTTAAGAATTTGTC<br>ATTACAATTCTTGAACCAGAACAATTCCGTGCAGGGGAATATTCCTGATTCAAGCTATGAA<br>GCAGGACTTGAATTGTCGGTTCAATCTTCAGGTTTGGGTAACCAGGTAAATGCACTAT |
| >Gm04_4<br>5090419 | CCAACCCCCCTCCCCCAATAAAAATAGGAAAAGAAATTAGCTAACCACTAATGACTGATGA<br>TGTAAACAGTTATGGAGGAACCGTTGGCAGCTTGAAGAACATTGCGACTAGAAACATGTC<br>AATTGCTTTGCAAACCAAGGCATACAATCTGACTGTTTTTGCCTGTATTCTTACAAAT[A/T]C<br>TGTTGCAAAATTGGTGCAGTTACTGGAGTTTGATTGGTTTTACTATTTGCAGAGACATTGA<br>ATTTGTACAGATTTGCATGTATAATAATACATCAGTTTTAACAAGAATTTGTACTGAGAAAA<br>TCACACGCCCCGTCCCTCTTGCAACTACTTTCACATTATTTACGTTAGATACTTCC |
| >Gm04_4<br>5157974 | GTGGATTTGTTTAGCGTGGAGAGGAAAGCTTTGTTGCAGAGTTTGCGTTTGACGATGTTT<br>GGGTGTTTGAGATTGGGCGAACAGAAAGATGATGATGGCCATTTGTTAGACTTGTGTTGC<br>GTTGCGTGCACTAGTTGACTACTTCCCTTTCACATTCCTTCTTCCTTCGTGGTAGCACC[A/<br>T]TAGGTGCATTCCTTATCCATCCCTTAGTCAAAGCTTTTCTAACTCTAATAATTCCTTTTAC<br>TAAAACTTTCCTTCTAGACGCTTGCCACCTCATTCCTCAGGGATCCTTCCTCTGCCATTTTT<br>TTTTTTTACTAAAATGGGTTAAAATTAAAATTAATTATAATAATACGTTGAACAAAA |
| >Gm04_4<br>5380790 | GTTGTTTTCTTTCACAGCCAATGTGTCATCATCTTCAAAGAAACAATCAAGCAAAGATAGA<br>ATGTCATTGTCAACTTGATTATTTGGAGCTGAAGGATGTGCTGAGCAAGAGGTCATCAATT<br>CTGGTACACAAGATACAGAGCCAACTTGATTGCTTGGTGCTGAAGGATGGTCTGAGA[A/G]<br>TGAGGGCATCAATTCTGATGCAGATGACACAGAGCCAACTTGACAGTTTGGTGCTGAAGG<br>ATGTGCCGAGCAAGATGGCATGAATTCTGAAACACGTGAAACAGAGCCAACTTGACTGTT<br>TGGTGCTGAAGGATGTGCCGAGCAAGAGGGCATGAATTCTGAAACACATGAAACAGAGC<br>C |
| >Gm04_4<br>5594453 | AGGTAATAAAAAAAGTTAAACAGGAAACTTTTTCGCTTTTTCAATAATTGGTTGGAGACAA<br>GAACTATTTTTTGTGGAAGACATCTTAGACATGTATAGTTTAGTTTATTTTCAATTTTTCTTA<br>ACAGGAAACAATCATTAGTAATTACTCTCATAAAATTGGTGATGCCAGCAACCAA[G/A]ATT<br>TTGGTGTTGACTGCGATGAGCAGTAGTACATTAGGCCTCATTGAGGTTTATGACAATCATG<br>GCCGTGCTTACCCTTGCAAAGGAAATGAACATGAGAAAATCTTAATCTTATAGATCCCTAG<br>AAAACCTTAATAAACTCATCTACAAAATCATAGAAATGGACTCATAACTTCGTAA |
| >Gm05_1<br>77701 | GTTACTGGGTGCACCTAGCATGTCCCGTGAATAAATGGGCCTCGGCCCGTTTATCTGACA<br>AAAAAAAAATAGAGAGAGAATTTTGCTCTTACCTATTTAATAAGTTCTACATAAACCCATTC<br>CTTTCCTCGAAAAATCACAGATATCTTGCTAGGGTTTTAGGAAAAGACACTGTCTCG[A/C]G<br>AGTGAACACAGGTAATCTCAATTATTCAATCTTCTTCTTTTTCTTCTTCAGTTTTCACCATGT<br>TTCTCTTCGTTTTTGTTTAATCTCACTTTTTTTCCCTTTCATTTCCTTTTGATTCGATTTATCT<br>GTTTACTTTTTTTCGTGTAGATCAAATATATTGCTAGGTATGGTATTATACG |
| >Gm05_1<br>77702 | TTACTGGGTGCACCTAGCATGTCCCGTGAATAAATGGGCCTCGGCCCGTTTATCTGACAA<br>AAAAAAAATAGAGAGAGAATTTTGCTCTTACCTATTTAATAAGTTCTACATAAACCCATTCC<br>TTTCCTCGAAAAATCACAGATATCTTGCTAGGGTTTTAGGAAAAGACACTGTCTCGC[T/C]A<br>GTGAACACAGGTAATCTCAATTATTCAATCTTCTTCTTTTTCTTCTTCAGTTTTCACCATGTT<br>TCTCTTCGTTTTTGTTTAATCTCACTTTTTTTCCCTTTCATTTCCTTTTGATTCGATTTATCTG<br>TTTACTTTTTTTCGTGTAGATCAAATATATTGCTAGGTATGGTATTATACGC |
| >Gm05_1<br>033474 | ATGAAGACAAAATGCGGGAAAAGGGTGAGACCCCAGTTATGTTCAGGTTAAGAATTTTCA<br>CGTCATTTTAAAATATGGATTTATTCCCAATTTGTGTTTGTGTAGTTCACACATTCTAGGAT |

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| | GTCTTTTTGGCAGTCATTTGGGGCCTCCTCGAAGGAGAACAACTGCAGAAGAAGAAG[G/A]GAGGGTTAAGCACCCGAAGCCTGAGGTAGGTTTTAGGTTGTTTGTGTGTGTGCGTGTGTTTATGTTTTCCTTTTCTTCCAAACTAAACTGGTGTAGCTGTCGATAACGGTTGAGTTACTGATTTTTACTGCAGGACTCTGTTTATTATCATCCTACATTAAACCCTACAGGGGCTCCACC |
| >Gm05_1128981 | CTGCAATCCAACCAAAAACAACTTGTGTTCTTCCTCCGTCCACGGAACTCCTGATCGTTCACCAAAACCATCACTCAGTCAATGCAAAATCAATAATCGCGTTTGACAGTTCCGATTAATTCAACAATTATGAGATTAAACAAGAGAAAAAAAATGATGATCGATCGGAGAGACGGATC[C/T]AACCTCGCTTTCGCTCGCGCTCGCGGTGGCGCCCGGAGTTCTGAGGAGCGGCGTCGTCGGCGGAGGCGTAGCCGGCGGCGACGGCGTCTTTGTTGTTGTTGGTGGTGGTGGCGTCTAAAGGATGTTCGTACTGTGAGAGGTTGTTCATGCTGACGCTCTTCCTCATCGAATCGACGACGA |
| >Gm05_1128982 | TGCAATCCAACCAAAAACAACTTGTGTTCTTCCTCCGTCCACGGAACTCCTGATCGTTCACCAAAACCATCACTCAGTCAATGCAAAATCAATAATCGCGTTTGACAGTTCCGATTAATTCAACAATTATGAGATTAAACAAGAGAAAAAAAATGATGATCGATCGGAGAGACGGATCG[A/T]ACCTCGCTTTCGCTCGCGCTCGCGGTGGCGCCCGGAGTTCTGAGGAGCGGCGTCGTCGGCGGAGGCGTAGCCGGCGGCGACGGCGTCTTTGTTGTTGTTGGTGGTGGTGGCGTCTAAAGGATGTTCGTACTGTGAGAGGTTGTTCATGCTGACGCTCTTCCTCATCGAATCGACGACGAC |
| >Gm05_3850942 | TAACACAACAAAATCGGATTTTTCAGTAGAAAATGGAAAAAAGAGAAAAACTAAGGATGTTGAACATTGTGGGTATAGGCATCTGAACAGCAAAGGAAAACAAGAGAGGAAGATAAAGTTACCGGCGGTGACGAATCGGCGGTTGTATTGCATTCTCTTGTGAGCACGTCCGCGTGGCT[A/T]CTTCTTCTTGTCTTGCTTCGCCACTTTGGGAGTTTGTCCTCTCACTTTCCCCGCACGTGCGAGAGATCCGTGAACCTTACCTGCAATCCAAAGTAAATCATTCAGAGTTTCGCACATGTTCGGAGAAACACCGAATAGAATTGAATACGCGTTGGAAAATAACTTACCCATTGTGATGAA |
| >Gm05_27712137 | CGACCAGCGAGCGTATTATTAAATTAAAACCCCAAAACAAAGAGCACTGTTTTAAAAAAAAAAACCATTCTATCTTTTTCATGACACGAATGCGATAAACAGTGTTGAAGGATCTGTGCGTGAGTTCTTGGTGAAACAAAGGAATCGTAGATCCGTTTGTTTGTGTAGTTTTTTTTTTT[A/G]GTCAGAGAAGAGAAGCGATGGGGTTGTGGGAATCTTTTCTCAATTGGCTTCGCAGGTTAGTAGCTTTCAACTCTAACAAAATAACAATGTTGTTGCTCTATATTTTTATTTTTAATTTATTTATTGGTTTTAAACTCGATTTAATTGATTGTTGAGGAAAACGATTGTGGATTTTAAGGT |
| >Gm05_38251772 | TGCTAATATTTCTTTGATACCCTCTGTAACCCCAGATCTGTCTGGTAAGGTTGATTTGTGGCCAAATGAAGATGGTAAACTTGAGCAGCTTCACTCAGATGAAGCATATGAGATGATTCAAAACCACTTGAGTCTCATTCTCGGTAACAAAGCTGGAGATTTAACATCAGTAGCTGAAA[G/A]CAGCAAATTCAGGGTAGGGCAGGTCTATGCAGCATCAGTGATGTATGGTTATTTTCTTAAGCGAGTTGACCAAAGGTTCCAGTTGGAGAAGACAATGAAAGTTCTTCCAAATGCAACAGAAGAAGAGAATGGTGTTCATCGAAATACGATGGACAATGCAAGACCCAGTATTGAACAGGA |
| >Gm05_38278658 | AGGTTCCCTCCCTTCAGATCTGGCCTCCTGCGTCAACCTCCGCAACCTCTACATTCAGCGCAACTTGCTCACCGGCCAAATTCCACCCTTTTTGTTTCATTTGCCGGACCTCGTTCGCTTGAACATGGGCTTCAACAACTTCTCCGGCCCCTTTCCGTCCGCCTTCAACAACCTTACCC[T/C]TTTGAAAACTTTGTTTCTCGAAAACAACCAGCTCTCCGGCCCAATCCCCGACTTGAACAAACTCACCCTCGACCAGTTCAACGTCTCCGACAACCTCCTCAACGGCTCTGTCCCTCTTAAGCTTCAGACATTCCCTCAGGACTCTTTTCTAGGTAACTCCCTCTGTGGCCGACCACTCTC |
| >Gm05_38279366 | GGAAGGGAACGCGAAGAAGTTGGTGTTTTTTGGGAATGCGGCGAGGGCGTTTGATTTGGAAGATTTGCTCAGGGCTTCGGCGGAGGTTTTGGGGAAAGGGACTTTCGGGACGGCGTACAAGGCGGTGTTGGAGGCGGGGCCGGTGGTGGCCGTGAAGAGGTTGAAGGATGTGACAATTT[C/T]CGAGAAGGAATTTAAGGAGAAGATTGAGGCGGTGGGAGCGATGGATCACGAGAGTTTGGTGCCTCTCAGGGCTTACTATTTCAGCAGGGATGAGAAGCTCCTTGTCTATGATTATATGCCCATGGGAAGCTTGTCTGCCCTTTTACATGGTCCGTCTTCTTTCTCTTTTTTGTGCTTGCT |
| >Gm05_38280387 | GGAGTGGACCTCCCCAGATGGGTTCAATCCGTGGTTAGAGAAGAGTGGACTTCTGAGGTCTTTGATCTTGAGCTCCTTAGGTATCAAAATGTAGAAGAGGAGATGGTTCAGTTGTTGCAACCTTGCAGTTGATTGTGCAGCACAATACCCTGACAAGCGCCCTTCAATGTCTGAAGTGGT[A/G]AGGAGCATACAAGAGTTGCGAAGGTCTAGCTTGAAAGAGGACCAGGACCAAATCCAACATGACAATGATATACTATTATAGAAGAACATGTATCTTCTCCCTCGACTTTGCTTTGTCAGAGTCGGAGCCCATATTTTACTTGCTAAATCCTGTGCGTATGTTGCTTGCATTCTGTTGGCT |
| >Gm05_38402327 | CATAGGAAAGTACATAGAACAAGTCTACAAGGACCTTCCACCCACTCACCCTGCTTTGTTGACTCACCATCTCAACCGATTGAAATCCTCTGCCCTCCTCGTCCTCGTCAAGAAATCCTACA |

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| | AGCTTCCTGGATCTCATCATCTGCCTGCGCTCCAGCCCCAAAAGACCCGTGGTCGTC[G/A]TCCCAAGCCCAAGCCCCACCCCGTCTGGCCTGCTGCAGCCCTCACCGACAGCCCTGCTCTTCTATCCGCCAAAAGAGGCCCCGGTCGTCCTAAAAAGATTGGTGTCAGCCCGCCAGGCCCAAGGGGTCGTCCACCCGGGACTGGGAGATCTAAGCTGCCCAAGAGGCCTGGCCGTCCCCC |
| >Gm05_38432746 | CATTAGTAAGACTTTCCGTCGCCTGCTTGAGGTAAGTGAGAAACAAACATTTACTGGTCCACCGGAAAATGTCAGAGATCATGTTATGGCTGCCACAAGGGTTCTTAACAAGGGAGACTTCCAGAAGGCTTTTGACATTATTGTGTCTCTTGATGTGTGGAAATTTGTGAGAAATCGAG[T/C]CACCGTACTTGAAATGCTGAAGGACAAAATCAAGGAGGAGGCATTGAGGACATACCTCTTTACCTTCTCTTCATCTTATGAATCGTTGAGCCTGGATCAACTCACAAAATTTTTTGATCTCTCTGTTTGTCGCACTCATAGCATTGTCAGTAGGATGATGATCAATGAGGAGCTTCATGC |
| >Gm05_38433427 | TGGGAGTGGCTATTCAAGGGGACGAGGAAGGGGTTCGTATGGAGGTTCAGGGAGGACTGCTCAAAGGGGTTCAGCATTGAGGGGACCCCAGGGAGATGGATCTACTCGCATGGTTAGCCTTAAGGGAGTTCGTGCCTGAATAAGAGTTTTGATAATTTGGCTAACGCACTATAGCATTC[A/T]AGTTTTCATTCTTGTAGGCTTTAATTTTCTTACGGATTTTATCTTTGTTTATTTGTTACATTGGAGCTTGCTTTCATTTTACACCTATTTTCACCTGGTTTTATTTTGTTTGAATTGTACCCTTAAGTGATGCATATTGACCTTGCTCATTTACGTGAGCTATCAATGTCTTTCACACAA |
| >Gm05_38433580 | AATTTGGCTAACGCACTATAGCATTCTAGTTTTCATTCTTGTAGGCTTTAATTTTCTTACGGATTTTATCTTTGTTTATTTGTTACATTGGAGCTTGCTTTCATTTTACACCTATTTTCACCTGGTTTTATTTTGTTTGAATTGTACCCTTAAGTGATGCATATTGACCTTGCTCATTT[C/T]CGTGAGCTATCAATGTCTTTCACACAAACTTATCTTTGTTTTTCTTTTTGTAATGAAAGTAATAATTTAAAGAAATTTTTCATAATTTTCTAATTACCTAATTTATCATTGTTATAAATATTAGGCTTAAATATTAATTTTAAACAAATAATAGTAAATTTTGGGCTCATTTGTTAGAAC |
| >Gm05_38589019 | TGCTGAGGCGCTTGAAGTTATTCCCTATACTCTGGCTGAGAATGCTGGTTTGAACCCGATTGCCATTGTTACCGAGCTGAGGAATCGTCATGCACAGGGTGAGATAAATGCTGGAATAAATGTGAGGAAGGGTCAGATTACCAACATCTTGGAGGAGAATGTGGTGCAGCCCCTTCTTG[G/T]TAGCACAAGTGCGATCATGTTGGCGACAGAGTGTGTGCGGATGATTTTGAAGATTGATGATATTGTAACTGTGAGGTAGAGTTGATTGAACAATGTGGAATTTAGAGAGAAACTGAATCACCCATTATCTTCTTTTTTTTTTTTTTTGTACTTCGTGCTTTAATTTTATGTTGGTAGTTT |
| >Gm05_38596037 | GTAGATAAAATAGAGGTAGAGGTGTGGTAGATTTGAGAGCAACATTGAAATGCATGCCAAGACAGACTCGGAGGTAACAAGCCTGGATGCGTCGTCCAGCACAAGGTCTCCTCGGCGAGCAGTGTACTACGTTCAGAGCCCTTCCCACGATGGGGAGAAAACGACGACGTCGTTGCACT[A/C]CACCCCTGTTCTCAGCCCCATGGGTTCCCCTCCTCACTCTCACTCCTCCTCCAGCCGCTTCTCCGCTTCACGCCACCGCAATAACCATAATAATAAATCTTGGAAGGGCATCGACGTCATCGAAGAAGAGGGTCTTCTCCAATCCGAATTAGATCGCCAACATTCTCTCTCTCGTCGATA |
| >Gm05_38696065 | AATACCACAGTACAGTGCGTTCAGGAAAAATGAAAAACCAAGCCCCAGAACTCGATTTCAAGTGGGTAACAGAGCAGTAGAGTTGATCCATTCACACGTAGGTAGCTACTCTCCTCAGAAGAACCAATTTTCATAAGCACCATGACGAATATCGAATATTTGAACTTAGTGGAATCAGG[A/C]TCAAACTCATGAGGTGTATTCAAATGGTTGAGGAGGTTGAGGTTCCTCATCCACAGCCATGGCTGATGAAGAACTCTGCAATCCTGTTGCTGACCCACCAGCAGCAGAACTGGTAGATGAGGGCGTGTCAGTTAGAGCAAGCACTTCTGGCTCAGTAGGATGCAAGTCTCTGAGAAGCAC |
| >Gm05_38913395 | AAACACAGAATATAAAAGAAACAGAAGGATTATATATCATATGATAGTTGAAACTTCCTTCCAAGGGAAGTCTCTCTCTCTCTCTCTCCCTCTCTCTCTCTCTCCCTCTCTCTCCCTCCCTCTCTCTCTCTCTCTCTATATATATATATATATATGTACATGTCTGTGTGTCTAT[T/A]GTAAGTTTCTAACATCTAAGGATAGCCCTGTCTCTGTCTGCCAATCCGAGGGGTGAGCGAGAGTGAAGGTGGTTGACATCTCTGAGAAGGGCACGCCTCATGTGTAGCTGAAGTGAAGGGTGCTTTATTTTCTCAATTTCTTCCTTAATTTTGATCACTTGGCTGTGAACTGCAAAACCC |
| >Gm05_38913666 | CACGCCTCATGTGTAGCTGAAGTGAAGGGTGCTTTATTTTCTCAATTTCTTCCTTAATTTTGATCACTTGGCTGTGAACTGCAAAACCCATGCAACCCTCTCGCGGAGGAGTAGGGGTCCTGTTCTCCATCTTCTTCTGCAAACTCACAAACAGAGCCTTTTACAGGAACCAAATATGT[C/T]TGAAATGTAATTTTGGCGTTAGGGATACCTATTCAAGGATATATATATATATATACCCGGAAGAAGGAAAGAAATATCAGATTTTGAGAGAGAGGAAATAAGGAAAAAAAATCTTTATTTATTATTTATTATAAAAAAAGGAAGTTTTATATGGGCTCCTTCCCGTCCACCTTCTCCATT |
| >Gm05_39082457 | TACATAGAATTACTTAATATTTGATTTTTTCATGAGAGTGATTATTATTTGCTGCAGCATGTGGTGCTAGTGGGGCTCTGTATACGCTGATTTGCTGTGTCATTGGCTGTGGCTGCCTATAC |

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| | TCTTGCTTCTACCGCCCCAAGATGAGACGACAGTATGGTCTAAAGGGAAATGGTTGT[C/T]CGGATTGCTTGATTCATTGCTTCTGCGAGCCCTGCGCCCTCTGTCAAGAATATCGTGAGCTTCAACACCGTGGATTTGACATGATTATTGGTATGCACTCATTATATATATATTAACACTACTCTATTTGCTAAATACCCAGCTATGCAAAGTTGGAAAACAAATTTCTTATTTTATAGA |
| >Gm05_39082469 | CTTAATATTTGATTTTTTCATGAGAGTGATTATTATTTGCTGCAGCATGTGGTGCTAGTGGGGCTCTGTATACGCTGATTTGCTGTGTCATTGGCTGTGGCTGCCTATACTCTTGCTTCTACCGCCCCAAGATGAGACGACAGTATGGTCTAAAGGGAAATGGTTGTTCGGATTGCTTG[C/T]TTCATTGCTTCTGCGAGCCCTGCGCCCTCTGTCAAGAATATCGTGAGCTTCAACACCGTGGATTTGACATGATTATTGGTATGCACTCATTATATATATATTAACACTACTCTATTTGCTAAATACCCAGCTATGCAAAGTTGGAAAACAAATTTCTTATTTTATAGAGAAACTCCTTTT |
| >Gm05_39166124 | CGAACCACAAGAGTAATTGATAGAGAGAAGGAAAAAAGATATTAGGAAATGAAGATGGATGTGAAGAGGTTGAATACTGACCGACGACAGTGGAACCTTCAGAACCCATGTTTGAGGGTGAATTGGAATTGGATGGGGGTAGGGTTTTGGAATTGAAGAGAGAGATAGAAAGACACAAA[C/T]AAGAGAGAGAGAGAGAGAGAGAGAGGGGGCGTGAATATGATCCTGAACAGACGATGACTGTGACTCAACTCAAGTCTAACAGCTGTTCGCAAAAGTAGAAGGTCTGTTACACTAACACTAACACGTACCAATATATATAAATTAAATATAATAGCAGTACTACCAACAAAGTTTAATCAAA |
| >Gm05_39166125 | GAACCACAAGAGTAATTGATAGAGAGAAGGAAAAAAGATATTAGGAAATGAAGATGGATGTGAAGAGGTTGAATACTGACCGACGACAGTGGAACCTTCAGAACCCATGTTTGAGGGTGAATTGGAATTGGATGGGGGTAGGGTTTTGGAATTGAAGAGAGAGATAGAAAGACACAAAG[T/A]AAGAGAGAGAGAGAGAGAGAGAGAGGGGGCGTGAATATGATCCTGAACAGACGATGACTGTGACTCAACTCAAGTCTAACAGCTGTTCGCAAAAGTAGAAGGTCTGTTACACTAACACTAACACGTACCAATATATATAAATTAAATATAATAGCAGTACTACCAACAAAGTTTAATCAAAC |
| >Gm06_2168622 | CTCCCTTCATCTACGGAGAATGTCTGATCAACAAAACCATGACTTCAAGCTGGGGCACCATTTTCTGGGAGAGAAAAAGGGAAAAAGGAGGAAAAAGAAGAAAATAATACCCAGTTATACATTATTACTACTTTGTGTCAGGAAGCTTGTGTGTGTACGAAGGGGCTTTCATCTTTTTT[A/C]CTTTTTTTTTTTTGGTTAATTCACATGCTTTCTTTCTAGGACTTTTAGAATGAGGGTTTTCTATGGGAATCATTACAATGATGGATGTCACGTAAAAGCGGGCTTTAAAGACTGAAATCCCATATGCTTTTATATGTTAATTAATGGTTTGATTTACTAAACGAGATTTTTAATTTAAGC |
| >Gm06_5456983 | CATTCATTTGTGAACTTTTTTTATTCCAGTCTTTGAATGCTTATTGGTTTTATCAAAATGTGAAAGAAAATAATTTTTATCGACACTGAAAATACTGTAATTTGTCCATTTGCAGGGTTTGAAAACGGGAAGTAGCTCTTGGATGCATCATGCAAAAGCAAAGGGAATAAGGAGCCGGG[T/C]AAATTTGTTACTCTAGAAAAGTGTCTGTGAAGATTGTTACAGTCAATATGTACATGAACTTGCATTTTTATTTTAATAACTAGTTTAATATCCATGTGGACCCACAAGTAAGTAAGGTTAAACATTTTTATGTTTATTTTAATAATGGTCTGTATCGGTTAAAATATGCGTTCTTTACGT |
| >Gm06_13383322 | TGAATGGTATGAATTTGAAGATAGTTCAATATCTATTGTCTTTTATATTTAATTTTGCATCTAAATACCACCCTCAAGGTGCTTGTACCCCCACTATTTTTCGTCTTATTATTTCCCAATATCTAAGTTCTTCTTAGTTAAATATTGTTTATGATTTCACAGGCATCCATTTTCTATAA[G/A]CTCCGCCCCTGGTGATGACTACCTTAGCGTTCATATCAGAACACTTGGTGATTGGACCCGGAGTCTCAAAGTCAAGTTCTCAGAGGTGAATTCAGGTTAACTTTTGTAGGATATTATGGTTTGGATAATACTAATTTACATAGCAAAACTCACAAATCCTTACATTATTACATCTGTTTA |
| >Gm06_15714602 | GAAATTAACGATAATAATACCTATATTCTTTATAGCGATCAAATGAATCACCACTCCAACCTTGCGTCTTATCTGCGGCCATAACAGAAAACGAAATCAGACACACCACCACCTCGCTCAGCCGGAACCCCAGCGCCGCCTTGCTCACCGTCTCGTCCGTCTTCCACCCCTCCGCCGCC[C/T]CCGCCGACCTTGATCTCCGTTCTCCTCCGCCGACCGCCGGAACCGCCTTTTCCGCCGTCCTCTGATCCTCCTCCGCCGCCTGGTCGTTGAACATCACCACCGCCGCCGACGGCGGATTTTCCGGCGGTTCCCGGTGCTCCGCGCGCTTCTCCGGTGTGAACTGCTTGAGCTTGCCAACGG |
| >Gm06_17838601 | TGTTTAGTGTACCAACAATTTGCATGATGCCCAAAGAAAAACCCTCAAATGAATTTTTGTTGTAATTTGCAAAATCCTTATAAGAATCGTTTTAAAAAAAAAAATAAAATTGGTAGGCTTTATGAAATTTGTTGTAACTGACGCACGCACAAGAGTATCCCATGCTAAACTGCAAAATA[A/T]GTTAAAACAAAAATAATCTGATAGTCGTATTTTATCAAAAAAAATATCAAGGCAACATCGAAACAGAAATGTTAAAACAGTTTCTGTCACATCCATAAACACAGTTGATAACTTCCATGACTCCGAGGCTTAACAAGATCATACAAAAATATATAACTTTGCTTAAATGAAAACAACAAA |
| >Gm06_42683097 | TTTTTATTACTACTATTATTTATTTTATTATAATATTTCTTATCCTTTAAATACATAGCTACTTAGCACATGATAGTTTGTTAATTTATATATCCAAAAGGCATTTTAGACCAAAGTTCTATGATT |

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| | TTGATTATAAGCTTTTGTAAACACAAAATAAGCTAATCCAAACATGCACTTAC[A/T]GCTGC<br>ATATTTAGGTCTACAGTGGGATCAGCAGGAGACATCTCAAATGCCTTCTTTAGACTTTGGT<br>TCAAATAGTACCTAAGAATGAAATTACAGAAATTGAAGTAAATGCAAACAGAGTTCCAACA<br>GTTGCAAGAAAATAAGAGACCTGAACAGACCGTGATGTGAAGGATCTTGTTGA |
| >Gm07_7806619 | ACTATATCACTGTCTTCTATTATATTTTTATGGATAAAAAATATAACATTATGATTATGATTT<br>CTTCATTTCTTGTTAATTGCGAGAGTCAGTAGCGAAATCCCCCCACGAAATGAAGGGTCG<br>GTCTTTACACTTATTGCCACTTTCCATCATAAGCAGGGTCGGTCTTTACACTTATT[A/C]CC<br>ACTTTCAAGTTTCCATCATTAGCTTTGGACTTATCCTTCTTAATCCCACTTTCTTCTCTTTCA<br>CTTCCATGCGAAGAGATCTTGCTTGATTCGAAAAGGAAGGAACTTGAGACTTGTTTCTCTC<br>AGAGATGGCGTTGCCTAAGGTTGATTTCGAGGTTGGAACTGATGGGGTTGCTGT |
| >Gm07_15490653 | CTCTCCCCTCAACCGCTTTATAAATTGGGGTCGTGGCTTCGCCTTGAAACTCGTTCTAGTG<br>TATGTGATTGTTGTGACTCGTTCTTCTTCGTCGTTATCTTCTTCTTTTGTTGTTTGTGTGTTT<br>GTTTTTTCTCTCACCTGAAAATGTCTTGCTGCGGTGGTAACTGTGGTTGCGGAAG[T/C]GC<br>CTGCAAGTGCGGCAACGGCTGCGGAGGGTAAGATTTTTGTTGTGTCACTGTTGCTTCACA<br>CTTCGAAAAATTGAGTTTTTCCGGGAAAATTTTCTTCTTGGGTTTTTTATGGGCTTTTTTGG<br>GTACCCTTTTGGTTGAATTGCATGAAAAAATTATGCTTTGTTTATTCTTGCATGAG |
| >Gm08_141320 | ATTTCTCAAAATTTTCAATCTTATCCCACAATAGAGCCAACTTGTTAGTGTCTCTCTCGCTT<br>CTAACACAATTCAACCAGTCCCTTGCTTCCTCCACTCTGGCCCAAAAGCATGAATCTTGGG<br>TCAAACTAGCAAATTTGCTCCTCTCCTTGTTTTCTTCTCTACCAGTAGTAACCGTT[A/C]TAT<br>CCTTCCACCACCTATCAAAAATCTCATATCTTCTCTCTCTACCATGCTGCATGTAATGGCC<br>CTTGGTTCTATGCATCCCCTTCCCATAATATTCAGCAATGTCTAGTGGCTCAACCAATAGC<br>TTATAGAAGTGTGAAGTATTCACCCACTTGGCTCTCTTGTCAAAATCATGAGGTA |
| >Gm08_588567 | AGCCTTTAGCTCAGAGTCTTCTACATTGCTATTAATGTTTCTAACAAAAAGTGTTCTAGAAG<br>GCTGTTCAACTAAAGGAAGTTTTCCTTTAGAACTTCCAAAGAAACCAAAATCTCCATCAAG<br>AGCACTCATTCTTTTTCCTGAACTTAAATGTTCATCTCCTTCCATCTCCATGCCTC[T/C]ACC<br>ACTGCTAAACAGATCAAAATCTTCAAAATCATCATTTGTTCTGGCATGAGAACTGCATCCT<br>AACTCATCAACAACACCAGAAAACAGATCATCTTCATCGGGAAGGAGATTGCCTATAGTGT<br>CAGCCTCCATTTCTTCAAGAGATTTATATGGTTCTTCCTTGGGAGGAGAACCAGC |
| >Gm08_3461787 | CAAAAACAACGACTGCACATTGTGCCCTCACGAGATCACCATCTGAGGTGGATCCTCAGC<br>AGCTGAAAGATCTGTCAATTACAACTTAGATACATATTCAACACTCCACACCCATTTTTGTA<br>TTGCTCAAAGGAATAATTTATGTATATCAAGGAAGAGGAGTTTTAATTAATTCAATG[G/A]AT<br>ATTTTTTAAGGAGGGACGCTGGTTATGATTGTAACAGGAGGTAAACATACATATGCTAATC<br>ACATTTTTGAGCCAAACAAATTTATAGAAATATCTTAATTACAATTGGATGTAGTTACAATTT<br>TCTACTGCTATTGTTTTTCCGAAGTAGTGAACAGAGGATTGTGTTGCTGCATAT |
| >Gm08_7669415 | ATTTGAAGTCCACATATCCTGAAGTGCAGCGGCAGCCATAGCTTGGTACATATCTGATTGA<br>TAATTCACCATTGAGGGATCAAGCCTTGGCTGCATCCAAGGACTAACACCAATACCCTGA<br>AAATTAAGAGATGGAAGACCTCTGTCTGTGTCTCGAAGCCACATTAGTGAAGAATTTA[C/T]<br>TCCAAAATCATCATCCTTCAAGCCTGCTATGATCCATAGGGGAGAGTCAATGAGAATGAAT<br>TTCCATTTATGCATAAATGATATTGACTTAGAAACATAAAACAGCTTTCTAAGTTGAAAATA<br>GCTCAGGTCACCAGAAAGTTCGTGAATATTGTCAGCTCAAATGTGGCAAGAAGCATA |
| >Gm08_13546289 | TTACAGGGAAGTTGTGCTCCAGGACTACATGAACAACTTCTTTGGGAATGCTCATGCTGG<br>AAAGAAGTCTCTTGATTTTGCAAGGATCAACTAGTTTGTATCAATAATATAAGAATTGAGAT<br>GTTTGTATTTCCTTTTTCATTTCATGTTTAATGAATAAAACCTTCAATATTGAGGCT[A/T]TAT<br>GTCACTAATAACTAATAAAGGTAAAGATATGGTTTGGTTAATCTTTATACACCTTAGCTTAA<br>AGAAAGAAGAGAGATAAAAAAAAAATGAAAATGAAAATGATGGATGCGATTCAAAATGAAGA<br>AAGAAAGAAAGATGGAAAACATATATAGAATGAGTGCAGAATTAAGGTGTGACA |
| >Gm08_44999796 | TCGATCTCCTCCAGGCGGTGGGACTCCGGGTCGACCAGGCCCGTGTTTATCAGCGCCTT<br>CAGCAGGGTCTGACCGGCCAGGCCCACCACCTCGTGCTTCTTACCCGCGAAGTCGATCG<br>CCGACAGCCGCACGATGCGGTCCGCGACCTTCTTCGTGGAGGAGGAAGAGGTGGAGGT<br>GCG[A/T]GAGATCAGGGATTTGGAGAAGAACGAGACGGAGGGGAGGCGGTGCACTTGCG<br>AGGACAGTCTCTGCAGATTCGCCACTGCCATTGGTGATTGTTGTTCGGCCAAGGAAGCCC<br>GTCCAGAGTGCTCTTTTGGTTCGGAAATCGGAACAAAGGGAAATGAATTTGGGTTGGGCC<br>CGATCGTT |
| >Gm08_45844445 | GACCGTTCCATTTGAACTGTTTGACGAGATGGAGCGGATCAGGTTGATCCGACCCAATCA<br>TTATGTCGGCCAAACAAAAAATATATTATATCTTTAATTTGCACTTTTACCAAATTGACGAC<br>TTGTGTAATACCTAGTCTCAGTGCCCAAAACAAAACCCCTTGCGTCCTCGCCGCACA[A/G]<br>TTACACTCCGCAGCACACTGCAATCGCCACCACGGACCAAGCTAGTTCCGCCGTCGACG |

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| | TCGTCGGCCACCGTCACGTCTCGCCGTCAGGTGCCTCCCTCTGTTTCTTTGGGGTTCTGG<br>GCATCTTTGTTTATTTGCCACGAATCTCTCTTTACCAACTCTTAACTAAAACTTGCTGATT |
| >Gm09_3<br>799409 | CGACCATAATTGTAGTTGCATCAGCCACATTTGTCAGCAATTTCCCACAATTGTGATCATA<br>AAACCTCGACCATATCAAGAAGAAGAGAGCTTGATAGCTTTGAAAGCAGGATGAAGCAAT<br>CCAAGCTCATCCTTAACCTCAAGAGGATTGCTAGTATCATTCCTCACCCTCTTCACCT[A/C]<br>ACGGCTACCAAGTGACTTATGAGTGAATCCATACATCTGCAAAATCTGGTTATCCCCAAAG<br>TTATAGGCCCTATCCATCTGCTTCAAGCACCTCTCAACAGGGTAATCCCCAAACTTCCCAC<br>AAGGCTTGCACCCCACAAAGTGAGTCACCAAAGGCCACCTATGATCACCAAGCCCCGG |
| >Gm09_3<br>799416 | AATTGTAGTTGCATCAGCCACATTTGTCAGCAATTTCCCACAATTGTGATCATAAAACCTC<br>GACCATATCAAGAAGAAGAGAGCTTGATAGCTTTGAAAGCAGGATGAAGCAATCCAAGCT<br>CATCCTTAACCTCAAGAGGATTGCTAGTATCATTCCTCACCCTCTTCACCTTACGGCT[T/C]<br>CCAAGTGACTTATGAGTGAATCCATACATCTGCAAAATCTGGTTATCCCCAAAGTTATAGG<br>CCCTATCCATCTGCTTCAAGCACCTCTCAACAGGGTAATCCCCAAACTTCCCACAAGGCTT<br>GCACCCCACAAAGTGAGTCACCAAAGGCCACCTATGATCACCAAGCCCCGGGTGATAA |
| >Gm09_6<br>112681 | ATGCATTGAAGGAACAACAAAATAACTAGAAAGGTATTGAGTTCAGAATAACCTGTGAAAT<br>AAACGTGCATATGGTTCTAGAGCCGGTAATCCAGCAACGAGATGCTCATCCAAAGCTGTT<br>GTTGGAGGAGGAAGTAGGAGTGCCGGGACAGCAGCTGCTGTTAAAGTAGCAGTCTCAT[G<br>/A]ACGAGCAACTTCATCATCACAAACACTTAATATAACACCAGCACCATTAGCAACTGCCC<br>ATCTTGGAGTTGATGGCACGAGTTGAGGATGCTTCCCAGAACCGCGAGCAGAAACTAAAG<br>AAAAACAAATTCAGTTAAGAAAAGATTATTATAAATCTTGTCTTTCGAGAATCAAAATGAT |
| >Gm09_1<br>5218066 | CATCAAATCCATCTGTATTTGCGTGTAACTGAGGAGCTGAGCTAGGATGCCGGTCCTTGT<br>AAGGGTATGATCTCTCTCTGCCTTTAAGCATCATGCGATTTCTTTCAGGTTCTTGCTTTGC<br>ATCATGCTCTCTTTTATAAAATCCCGGCTCAATTTCATCAGGGTGCTGTCTGATGCTA[C/T]<br>CCAGATGTGCTGATTGTGGATCCTGAACTACTTCTTCCTCAAAACCCTCTTGCCGCTTCTG<br>GTTATCTCTACTGCTTGCTGATCTTGCTTTGCTGTTATCACTACTTTTTGCAGCCTTTGAGT<br>CCTCCCAATCATCATCAACTTCATCAGGCAAAGGTGGCTCAACTTGAGATGTTACTT |
| >Gm09_1<br>7990620 | AACATATGAAATTGATGGAATTAAGGGTCAATTAAGCCCCATAATACATCAATTTTTATTTC<br>TTAGATAGCATTAGTAGAGTAAAACATGAGCTTAATTTGATGATTTAGTTGTGCCCCTGAG<br>TAAGGTAAGCATCAATTTTTTTGCTAACCACAACAGCCAGTTGCAACAAGGTATGA[A/T]CG<br>TCAGGAATGTGGTCCTCTTGTTTCTCGTATTCCATTGCCCAAAGCACTACGCTGCCCTTTC<br>CTTTTGGAGTAACTTGCAAATTAGACTTGAAGCTCTTGTAGAGTCCCAGCACGTCACCCTC<br>TATGACCTTCATTGTCATTTTGTTATTTTCCTTGTCTATGCCTTCAAGCACTTGCT |
| >Gm09_3<br>8634550 | AGGTGGTGGCGGAGGAGGTGACTCTATACAAGGTGGTGGAGATGGGGGTGGCGGTGGT<br>GGTGAATAAACTGGTGGGGGAGGAGAGTGAACTGGAGGAGGTGGTGGCGGTGATAAATA<br>GGGATAAACTGGTGGTGGTGGTGGTGGTGAATGTGGTGGTGGCGGTGGCGAATGAGGT<br>GGAG[A/T]CGGTGGAGGGGGGGAATACACTGGTGGTGGAGGTGGTGGCGAATACACCGG<br>CGGTGGGGGTGGTGGAGGGGAATGAGGAATGTAAACAGGCGACGGCGGAGGCGGCGAT<br>GGCAATGGTGGTGAGGGAGGAGGAGGAGGAGGCAATGAAGGCACAAAAGGCTTACACC<br>TAAACGAATTACA |
| >Gm09_4<br>4037531 | AAAAGTACACCAAAATTGAACAAGGATGAGGATGATGATTTGTGGGGATCTATAGCAGCT<br>CCTGCGCCAAAAACTGCAAGACCTTTAAATTTGAAATCAGCTCAAACTGATGATGATGATC<br>CTTGGGCGGCCATTGCTGCTCCAGCACCCACGATCAAGGCCAAACCCTTATCGGCTGG[A<br>/G]AGAGGTAGGGGAGCCAAACCTGCTGCTCCAAAATTAGGTGCTCAGCGGATAAACCGG<br>ACATCATCAGGCATGTAATCCAAATTGCCTGGGAACCGAAGGAATGGCGAAAGAGTTAAT<br>CTTAGTGCTAGTCGCCCTTTTCTTACGGTGGCAGTGACCATGTTAAAATACAAGACCCGTT<br>AT |
| >Gm09_4<br>4175240 | GACAGGAAGGTCAATAACAAGTCCAATATCCAATTGGTAATCAATGTCCCAATCTGCACCA<br>ATGTCCTTTGCCAAGCTCAGTAATATGCTATGAGGCACCTTCACTGGCACATCCAACATTG<br>TTGTGTCACTTGCCTTCAATGACCCTGGGTCAGGTATTGTTCCTGCTGCTATCTCCC[G/A]T<br>CACCACTCAACACAAAAATAAATATAAATAATTAATATAACTAACACAATATCAATTCTTATC<br>TAAAGTAACAAATAATCAAGGACACAAAAATAATGTAAACCAAAAATTAAACGATCACACG<br>AAAAAATGCAGATTTTTCAATGGATATAAGGGAGTGGATTCTTCCTTTATGCAAT |
| >Gm10_4<br>962619 | GGAGAGAAAGGGAACGAGTTGTTGAAGAAGAAGGTCTTGGAAGGAGAACGGGACGGAG<br>CGAAAGAGAATCTGAATGTGGAGAAGCATATTGCAGCAGCAGAGGTTTCCGCCATTGGAA<br>CGGTACGGAGTTAACCACAAAACGTTACGTTACGTTATCAAAACCGCTTTCGATTATTCAT[<br>A/C]CAACTACTCACCGCGCGTTCGTTCGGACACCCTCCTCCCTCTTTGTCGCGCATTTCT<br>GGATTATTTTTTTATTTATTTATTTATTATTGCTTAGAGTGTAGTGTTTTTTTTTTTTTTTCT |

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| | GGCTGAAAACTTCACATGGATACCGCACACACGTTCCTATTTTTTTATTATTATTATTA |
| >Gm10_33420456 | TAGGTGGCGCGGAGCAGGCGGAGGATCCGGGGAGAGTCGCCGTGGGAGCCGGAGATG<br>AGGTAGGCGAGGGAGGGAGGGGAGGGGGTGGAGGGTTTGTGGGTGTGGAAGATGGGG<br>TGGAGGAAGGGGTCCGGGCCGGAGTGGGGAGAAGGGGAGGTGAAGGAGAGGGAGAGG<br>ATGAGGGT[T/C]AGGGAGAGGAGGGAGAGGAAGAGGAAGGAGTAGAGGAGGAGGGTGG<br>GTTTGGGCTTTGGATCTCTGAGGTTGAGGAAGGTGGAGAGTGAGGGCCAGTGCAGCTGG<br>GACTGGGAGGGTGCTGGTGCTGTGCTGTTCTGCATTTTTGGGTGTGAAGGATGTGATGAT<br>GGATGGTGGTTTGCT |
| >Gm10_47189583 | AGACAAAAACAACATGCAATGAGATTGTTGGCCTCACCGCCGACAATTACATAGTATATAT<br>TTCATAAACATTCAACCCAAAAATCATTATAGAGCATGGCCTTTACTTAATTATGATTATTA<br>GTAGTAGCAACATAACATAACTCAAATGGTTGGTGATTTATTTTTTGGTCCAGTAT[G/A]TG<br>AATACAATGCCAAATTCCATAATGTGATGCGAGTGACACATGCCATTTACAAGACATGCAA<br>CGCATCATCCCCTATTGCTACCTTCACCACTGGCAAAGACTCCATCAACATAACCAATCAT<br>GGCCACCACTTCTTCTTCTGCGGCGTCCCTGGTCACTGCCAAGCAGGACAGAAGGT |
| >Gm11_5650369 | CCTTCTTCGCGGCTTCGGCTAACTTGTACGAAGCCTTGATCTTGACGAGTTTCCCTCTCG<br>CAGCTTGGTTCTTCAGTTGCAGACCTAGTATCTTCTTGAAATTCGCAGGAAGCACCGCCTT<br>GTGCTTCTCCTCCATGTACTTCGCTATCGCATATGGACTCGATCCTCCTTTCTCGTTC[A/C]<br>GAGCAATCAAAGCGTCCTTAATCATCTACAAACAATAAGACAACCAAAAAAAAAATCAACA<br>AACAAAAAAATAACAATCACGTAATAATTGTGGATTCATGAAAGAAATTTACGCGAAATTAC<br>CTGGAGATATGGAGGATGAGAAGCAGTTTTGGCCTGTTTCGGCTTCTTTTCCTTCGG |
| >Gm11_9563735 | CAGATAGAATTGGTGAGCAGATCTCTTCTTCCTTTTTTAAAGGTTTTTTTGTGATGCAATTA<br>GATTAGTATTTAGTCACTCAAGTTGCTCAAGCTAATAAGCTCTGGAGCAATATGCTGAAAT<br>TCTAGTGTGTGCTGTGTTACTTATCTCATTTTTCTTTTTGAATTGTTAGGTTCCAT[T/C]CCT<br>TAGGGACAATTATGCATATCTTTTACACGATGTGGATACGGGGACAGTTGGTGTTGTTGAT<br>CCTTCTGAAGCTGCACCTATCATAGATGCGTTGAGCAAGAAAGATTTAAATTTAACTTACA<br>TAATGAACACCAACCACCATCCTGATCATACTGGTGGAAATGCAGAGTTGAAAGA |
| >Gm12_3433264 | ACGATTTCCCAAATCATACATGATTTATGAATACACGACAGCTAGAAAGACACCACATCAA<br>TCCTCTTCATCTTTTGTTTTCTACATTCTATGAAACCAGAGGACTTAAACTGAGATTTTATT<br>CCACTTTTTAACACATGCTAACTTTAGGTCTTAGGACAAACATGAATCACAAAACA[A/C]TG<br>GCCGGGTGTTTATAGATATCAAGTTGCAACAAATGAATGATACAGAAGACACTTGGTTTAA<br>TTCTCACATATCAACCAAGTCCAAATGGTGGTGCCTAAAAAAGTATGACCACCAGCGCCC<br>AGATGGGATAAACCAACAGAAGTATTATGCCAATGGAATTTGATATGCCGTGAGCTT |
| >Gm12_3862466 | GGTGGTGTAAATCAAGAAGGAATCAATTATTACAACAACCTCATCAATGAGCTATTGGCTA<br>ATGGTCACAACTCACTATTCAAAACTCTGTTTTTTAATTACATTTAAATTTTAGCATTTTAAT<br>TATTAAGTGTTGTCAACAAAAATTAATCAAATATTGTTTGTCATTGAGACAATTA[T/C]AGGT<br>GTACTGCCATATGTGACTCTTTTTCATTGGGATCTTCCCCAAGCTTTGGAAGATGAGTATG<br>GTGGTTTCTTAAGCTCCCATATAGTGTGAGTCTCCATTTCATAACTATCCAGCAAATTTAAT<br>GTTTTTCTCATCATCAGTAGATGTTAGATTGTTAGTTTTTACTAAAAATGTTC |
| >Gm12_10340760 | AGAGGGAACAGGATGCATAGATTTGAATTGAGTGTTTGTTTCTTTCTTATTCAGGGAAGAG<br>ACCGAGTCAGGTGAGTGTGAGACAAGGGATTCGTACAGCGATTCCTACAGTGAAGAGAG<br>TGAGAGTGACAAACTATGGAGGTGGGATGGAACTTCGTCAGAAGAAGGAGGATCTGAGC[<br>G/A]CGATTGTTTGTGGCACATGAATGACCGATTGGGTCACCTTTACTTCCAATATTTTGAA<br>AGATCAACTCCATATGGGAGAGTTCCTCTAATGGATAAGGTGCGTTTGTTTTGTTCTTGTT<br>GGCCATTTCTAACTTTTTTTTTTGCAGCTTTATTAGTTATTAGATGTGCTGAAAGAATTTC |
| >Gm12_15607093 | TCTCCCTATGCCATAAGCTTTGTTCTTTTTCTGTAAACATGATTCTCATACATCCACGTACA<br>GGTGTCAATGAAAACTGAGGTAACTTGGCTTCGTGATGTGCTTCGCGGTGATGATGTGTT<br>TGAGTTGCAGGTAAAACTTCTCAAGCATGTCCCAGAAGAGTATCCATACAAGGATGA[C/T]<br>GAGTGAATTTGTTTTTGTAGTATTGTATACTCCAGGTTTTCATTACTTCATCATCTCTGCAT<br>TATTAGATTATCATATTCTGACTGGTCCTGTGTGTATTATGATAAAACACTAAATACAACAG<br>AAAATCTTTAATTAAATGATTATCATATTGGCTTTGACAGCGAGCTACGATCTATT |
| >Gm12_24557740 | ATTTGGGGCAGTCTCAGGTGTAACAGCCACCGGATACTTAATGCTTGAAGGATTCACCGA<br>CACATTTAGGACCGAGCTGTTGACATGAAGGTATTTCCTATCATTCACCCAAGTCCTACCC<br>AGGGTGTCATTTTGGGCAGTAATCAAAGGACCCCCCATGTTCAAGCGATAAACAGTTT[A/T<br>]AAAGGCAAGTTCAGAAAGTCCACTGAATGTTGCTGGCGGGTTAACAGCCAGTGCATGAT<br>CAAAAAACAACTCATTCGGCATTGACACGACTTCAATTGCATTGACAAAGGCCACTGAACC<br>ATTCGAAGGAATGAAGGTGACAACCAATGTATCAGAGGTAACATTGATTGCATACTCCTT |
| >Gm12_3 | CATATGTGTATGAAAGAGTTTATGTCATCTGACACCGCATGTATCAGTTAACTTTTGACTAT |

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| 5462187 | GAATCAAAGTGGTACCTGAGAGAGCGAGCTTGGTCAAGAGACCAATCAATTTGAGTAGTT<br>GGACCTCCTGGGGGAGGACTAGAAACACTTGTAGGTGAGTTACTGTAATGAAGAATG[A/T]<br>AGGTAGCAGTCAACACTTGGGAGGTGAAACGTGTTGAGACCACAATATAATAGTCTTGAG<br>GTGGTTGATCAGCAGTTACTAACACCGAGTAACTCTGCCCCAAATGAATGTCAAGGGAAT<br>CATAAGTGTTTTGGAGAGTATGGATTCCTTCCACCTCAACTAGCAGCATCTTATGCCCTT |
| >Gm12_36713901 | TCTTAGATGGTTCACTCGTCAAATTCCTTGCTAGAGCATAATCTTTCCCCTTTTTGATCTTT<br>GTAGCAATTCTTTTCTCTTGTATTGGCTCTTTTCTTTTCTTCTCTTTTATCTTTATTCGGATT<br>TGCCTATTGTTGTGATTCATTGGTTTAATTACGATCTTCAACCGTTTATATTTG[A/G]TTCTT<br>TCTTGTGATCTAAATTATACCTCTCTCTCTCTCTCTCATTCTGTCTTAAAAAAAAAAATTTGA<br>TGTTGGTATTTCATTCATGTATGACAATCTACATGTATATGATGAATAGCACGTCAGAAACA<br>ACCGTTGACTCACTTTTAATTTTTCCTCCCATGAGTCCATTCATTCAAAC |
| >Gm13_35617464 | GTGATAATTGCTGCACGGAGCAACAACGAGATGGATGCATCCAAACTGAAGAACGAGTTC<br>CCTGAGCTTCTTTCCATCAAGGAATCACTGATCAAGTATGTCTTTGAGCCAAACAAGAAAA<br>CTGCTTAAATATATTAAAGCGGTTTCATGTTTTAGACATCACAGATTATGCATTTTTG[A/C]G<br>GCGGGCTACATAGATCACTCATTATTTCATTGTTATTTTGTTGGGTTTTGATAAGAACCATA<br>CTACAAAAGCTAGCCATGTAGTTCTTGTTCTCTTAGCTATAAGCGATTCCTGTTTCAGCAT<br>ATTTCCATTATATTACCGTGTTTAGAGGGTGACAAGTATTATAACTGGGCCAGATA |
| >Gm13_35823484 | AGCCTCGTCCCCGACGTCATCGATCTCAGACCTCAAAAAAACTCAAAAGGGTCCTCCTCA<br>AACCTCCCAAAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAAATAGCCTTCTG<br>GGTCGGTCACAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTTGTGTTATAA[T/C<br>]AAGAATGTGGAGGAGATGGTTGGAAGTGGCAAAGTCAGCACATTTGGTGGATTTGGGAA<br>GTGGGTTTGTAGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTCGGAGAAATGG<br>GAAATGGTTTTGATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGGAGGAGAAGAA<br>GAAG |
| >Gm13_35823512 | GACCTCAAAAAAACTCAAAAGGGTCCTCCTCAAACCTCCCAAAGAACACAACTTTGGACC<br>AGATTCGATCCAACAAAGTTAAATAGCCTTCTGGGTCGGTCACAAATTGAAAAGGGTGTG<br>TGTGTGTTAGAAGAAGAAGGTTGTGTTATAAGAAGAATGTGGAGGAGATGGTTGGAAGT[G<br>/A]GCAAAGTCAGCACATTTGGTGGATTTGGGAAGTGGGTTTGTAGCCGGAGAGTGATCGG<br>AGATCGGAGGAGATCTGGGTCGGAGAAATGGGAAATGGTTTTGATGAGAGTGTGTGTGG<br>ATGTGTGTGAGAAAGAAGCGGAGGAGAAGAAGAAGAAAAGGAAAAGAGTGAGGAGGAGG<br>AGGC |
| >Gm13_35823533 | GGTCCTCCTCAAACCTCCCAAAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAA<br>ATAGCCTTCTGGGTCGGTCACAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTT<br>GTGTTATAAGAAGAATGTGGAGGAGATGGTTGGAAGTGGCAAAGTCAGCACATTTGGT[C/<br>T]GATTTGGGAAGTGGGTTTGTAGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTC<br>GGAGAAATGGGAAATGGTTTTGATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGG<br>AGGAGAAGAAGAAGAAAAGGAAAAGAGTGAGGAGGAGGAGGCACTTGATTAGCCAAATT<br>TGCG |
| >Gm13_35835159 | TAGTTGCCGTACATTCGCAGGCCGGAGAAGATCTTCGCCGCGATGGCTCTCCTCCTCCTC<br>TCTCGCCTCTTGTTGTTCTCCCGCTCCTTCCACGTTGGCTGCCTCGCGACGGACGTCATC<br>CTCTTCTCGCCGGAAAAATCAAAGAAGCTCCGAAAAGAACAAAGGAACAAAAAAAGAAA[A<br>/T]ACACACACGCGAACACGAATGTTAGAAAGAAACACAGCACACAGCGCGAGTAAGCGAA<br>TTATAGAGGAAACGACATCCTTTCTGCTTTTTTTATATAAGGTGAGCTAAAACGACGACGT<br>CGGATTTGAGAGATTTGGGATTGTGATCTGAGTAGATCTAGGCGAGGGAGGTTGGGTGG<br>TG |
| >Gm13_35862124 | ACTAATTAATGTCTTATGCTACCAAAGCACTCATACAATCACTAACAATGACGAACACTCA<br>AAATCACTAGTCTTAATTAAAACATCTATCAAATATGTTTTCTGAAACTTTGCAATTTCTAAT<br>TCTCTAATTGCCCAATTTCTTTGCCGCGTTAGCTTCAACCCTAGCCTCGTCATTT[A/T]TTTT<br>GCTTCCGTTGTTACCATTCGGCATTTTTTGAACCACCTCATTATGTTGTCCACCTTTCCCCT<br>GGCTGATGGGTGACCCTCTTTTCCCTCCAACGCTTCCATGGCTGGGGCCTGACCCTCTTG<br>TTCCTCCGTGCGTTCTCACTCTAAACAACAATAACGTCAGTTCTTAATTCATAT |
| >Gm13_35862205 | AACATCTATCAAATATGTTTTCTGAAACTTTGCAATTTCTAATTCTCTAATTGCCCAATTTCT<br>TTGCCGCGTTAGCTTCAACCCTAGCCTCGTCATTTCTTTTGCTTCCGTTGTTACCATTCGG<br>CATTTTTTGAACCACCTCATTATGTTGTCCACCTTTCCCCTGGCTGATGGGTGAC[A/G]CTC<br>TTTTCCCTCCAACGCTTCCATGGCTGGGGCCTGACCCTCTTGTTCCTCCGTGCGTTCTCA<br>CTCTAAACAACAATAACGTCAGTTCTTAATTCATATTTCATTTTATATATATATGCAGAACAT<br>CTAGCTAAGGCTGAATGAGATTTATGCATGTAAAGAGTGTTTAACTTGATCACT |

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| >Gm13_36473402 | CAACAGGAAAGAAAGCCCTACAATAGAACTATTCATTAACCCAATGAACAAGCAATGTGCA<br>TATACAATTACTGCTATGATTTAAACTCAATGTGCAAAGTTAGTTTGACTCTGCAAGGCTCA<br>ATAAACCAGTCCTAAAACTAACACCTACGCTTTATAGACATCTCCGAATGATCCCT[G/A]TC<br>CAATAAGCTCCAATGAACTGAATCTCGATCCTGAGGCCTCAACTAGACCTGCCACATCAG<br>CCATTCTCTCAGCAGCAAGTACTCAAAGCCTCATACACAGACTAAACCACATGCACCTGA<br>AAAACCAAAGAGCACAACTCAGAGATGTAAATAGTGAAAATCACAAATCTCAAATCTC |
| >Gm13_37946607 | GGGGAAAGAGATACTCCATTTGTGCTATATTTATGGTATGTTTTTATTTGTGTGGTGTCTG<br>GAAATGGCCTATTTCATTCCCAATCCGTTTCCTCCAGTCTCTGGGGGATTTGATTGATGAG<br>AATTGCTTATGGTGGGTGTATTTCCTTTTCCAATGAAATGCTACAACATTTACTGCA[T/C]T<br>GTTGGAGATTGATTCTTCGATTGTTTAATCTTGACTTCCATTCTGACCAATTCTATTGCCGC<br>AAAACATGGAACAAGTAAATAAACGGGCTGAGAGAAAATAAGCATTTGTTTCACCAGTCAG<br>GAAAATAGACTTAACTTTCCTCAAAAAATAAAAATGGAAAATAGACTTTACTCCAT |
| >Gm13_37946608 | GGGAAAGAGATACTCCATTTGTGCTATATTTATGGTATGTTTTTATTTGTGTGGTGTCTGG<br>AAATGGCCTATTTCATTCCCAATCCGTTTCCTCCAGTCTCTGGGGGATTTGATTGATGAGA<br>ATTGCTTATGGTGGGTGTATTTCCTTTTCCAATGAAATGCTACAACATTTACTGCAA[C/T]G<br>TTGGAGATTGATTCTTCGATTGTTTAATCTTGACTTCCATTCTGACCAATTCTATTGCCGCA<br>AAACATGGAACAAGTAAATAAACGGGCTGAGAGAAAATAAGCATTTGTTTCACCAGTCAG<br>GAAAATAGACTTAACTTTCCTCAAAAAATAAAAATGGAAAATAGACTTTACTCCATT |
| >Gm13_39111783 | TCCGAGATGTACTCCTTAAGGTTAATATACCAAATTCTAGAGATCTTTGGCTTAACTCTTTG<br>GCTTCTGTGTACTTAAAAGTAGATGATTGAATAATTAATTCAATATAAAAAAATATTGATTTG<br>ATTTTACATAAAAGTTAAAAGACATAAAATAAATAAATAAGAAAGGCACATGAT[A/G]GTGT<br>GAGAGGAAAAATGCATTAAATTGAGAATAACAATGAAAAAGTACATCAATACAAAAAAAAA<br>AGACTAAACATACATTAACTCTGCTGTTGGTAGCACAAGAAATTCTGCTGCTTATTGCAAG<br>AGCATGATCTACCAGCAAAGTTGGAAATAAGAATAACAATGGAACCTACTTATT |
| >Gm13_40270504 | TTTGGTGGCACATTCAATAACAGCTGACAGTTTCTTCCAACTGATTTATAGTATATCTCAAG<br>TAAACTCCTTGCAGACTTAGGTTGTTCTGAAGCGTGCCAAAACCAACCGGTCCTAATAGA<br>GACATCACATGTAGCAGGTAACCAATCAGGACCAAATTGGTCTCCCTCGCTATTGTA[G/A]<br>CTGATAGACGACCAAAAGATTGGTGAATAATACATTTTTGACATGCCATTTTGAGAGCATT<br>TCTAGTCATGTACATACATGATCCTCCAGACTTTCAAGCCTTTCCAAGGATACATGCAAAA<br>AAGAACTAATGACTGAAATTTACATTCTTCAACTTCATTTAAAACCAATGAATCAAAG |
| >Gm13_40270505 | TTGGTGGCACATTCAATAACAGCTGACAGTTTCTTCCAACTGATTTATAGTATATCTCAAGT<br>AAACTCCTTGCAGACTTAGGTTGTTCTGAAGCGTGCCAAAACCAACCGGTCCTAATAGAG<br>ACATCACATGTAGCAGGTAACCAATCAGGACCAAATTGGTCTCCCTCGCTATTGTAT[T/C]T<br>GATAGACGACCAAAAGATTGGTGAATAATACATTTTTGACATGCCATTTTGAGAGCATTTC<br>TAGTCATGTACATACATGATCCTCCAGACTTTCAAGCCTTTCCAAGGATACATGCAAAAAA<br>GAACTAATGACTGAAATTTACATTCTTCAACTTCATTTAAAACCAATGAATCAAAGT |
| >Gm13_41274238 | TGGATCCACTGCATGGTTGTTTGAGGATATTGAGGAATCAACGCTAGAGGGTGTTGGTGA<br>TGACGATGCAGCTTCTCCTCGCTTTTTCTCCTGAGCCTTTTTCCTCATCAGAGTCCTCCAG<br>TAATTCTTGATCTCATTGTCAGTGCGCCCTGGTAACTTGCGAGCAATTCTTGACCACC[A/T]<br>GCATGTCTCAAAGTAACCATGATTAGATTTGAAATTAACTGGATAAAGAATATGAAACGCA<br>AACTTAGATGTAGTCAAGTGTTGTTTTCTGATCAGAATTTGGAGTTTTACCATGGTGATCT<br>GCATAATAAAGGTTTGCATTAAAGATCCATCGACATAAGTCATATATAAAGGTGAAAC |
| >Gm13_41274239 | GGATCCACTGCATGGTTGTTTGAGGATATTGAGGAATCAACGCTAGAGGGTGTTGGTGAT<br>GACGATGCAGCTTCTCCTCGCTTTTTCTCCTGAGCCTTTTTCCTCATCAGAGTCCTCCAGT<br>AATTCTTGATCTCATTGTCAGTGCGCCCTGGTAACTTGCGAGCAATTCTTGACCACCT[C/T]<br>CATGTCTCAAAGTAACCATGATTAGATTTGAAATTAACTGGATAAAGAATATGAAACGCAA<br>ACTTAGATGTAGTCAAGTGTTGTTTTCTGATCAGAATTTGGAGTTTTACCATGGTGATCTG<br>CATAATAAAGGTTTGCATTAAAGATCCATCGACATAAGTCATATATAAAGGTGAAACT |
| >Gm14_1069974 | CACTTTCTTTGCATAGGGCAACCTCCTTTCTCTGTGACTCTGAGTATCGTATCGTTTTATTA<br>TTATTTCTAATTCTCTCTTATCAGTATGTATTCAAAACCCTAGCTAGGTTTTTGGAGCTCCC<br>TTTCTTTCTTTCCGATCCCACCGTCAAACTTGTCATTCTATATGCTTTGCAGGGT[A/C]CATT<br>GAATATGTCTCCGTCGTTGGATCTTCCTCCCAAGGGTGGCTTCAGTTTTGATCTATGCCGA<br>AGAAACGCAATGCTTCAAAACAAGGGCCTCAAAGCCCCAACCTTTCTCAAAACTGGCACC<br>ACTATTGTCGGTTTAGTTTTCCAGGTCTGAAATCATTCCCTCGCTCTTTTCATGT |
| >Gm14_4838692 | TTTTATGCACTAGTACCTGGTGCCGTTATGGTGTGACTCAGTCAACCTCTTAAATGCGGGT<br>TCCGAACAAGGAATTGGCAGTTTTCAATGCACAAGATACTATTACTAACCCAGCAAGCAAG<br>AAAATGGAGAAACGGCTATTAAATAACAAAGGAAAAAAAAAAAAAAAAGGTTATGTGT[T/C]T |

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| | GGGGTGGTAACAAGTGACCAAGAATGAGTCCTTTGGTGTAGAGATCTGACAAAAGGAAGT<br>ACACCTGAGAGAGTAAACTTGGAGGTTGGAACTATGCTTGGGACTTGATTAAAAGAAACA<br>ATATAAAAATGAAAAGAAAGCAATGGTAAAAAGGAAGAACTAAGAAGAAGGGTGTTTAA |
| >Gm15_5<br>573351 | GAGGAAACCTTGTGTTTAAGGATGGGAAGCATGCTCCTGCACCGTGTGGTGTTCAAATAC<br>TAGCCAAATGAGTTAGTTAAATACTGGTGATCCCCATAACTTTCCAAGCTCATCTCAATTTC<br>ATTTGGTTCTCTATGAATTCATGATATGCTTATCATGATCCTTATTCATGTTGTAGA[A/C]AG<br>GTTTCTTTCAGATGCTAGTTACGTTGGGACCTAAATAAGAGATGGAAGTAGATGCTGGCAT<br>CGACCACTGACCTAGCATTCTCCTTCTCATAGACTAGTGCATTACCAAATGTATTATTATC<br>GTTTGAATGTTTGGACAATGACATAATGTTGTTCTTTTCTTGAATGCGTATGTAGG |
| >Gm15_7<br>814112 | ATAGGGCAGAGAAAGCGAATAATTGAAAAAATTAAGAAGAGATTGGGAACCTACTCAGTT<br>CCTTTCTGGCGAAGGATCCGAAACTGCTCGGGGGAGAGAATGACCTTCCATTCCTCTTCA<br>GTTTTGTGAATCGGCGTTGGTGCTGCCATTTTTTCCCAGATGCTCCACACTGAAAATAA[T/<br>C]AAAAAAAAAATCCCTTTTTACAGTGCCCAATTGCAAGGAAAAAACAGGGGAATCTTCCA<br>AGAAGATTTTCCGGGAAAATGAACTTGGACGGAAAATTGGGTCTGGACGGTGACAGTGG<br>GGGCACGTGGCACGCTCATGAACTAAAACTAAGAAAACGAAAAACGATTTTTGGTTAAGA<br>AA |
| >Gm15_9<br>432381 | CAGATCCGAAGGAGGAGAGAGAGACCCAAATGGAAAAAGAGTTAAACTTGAAGGGTTATG<br>GAGAAAACCCAGGTTGGGAAGGGAAGAATTGGAAGAGGGGAAAGTAGGAAGAGAACAAA<br>AGAGTACCTAATTTGAAGGATCAGAACACAGCTTCGTAGCTTTTGCAGAGAGAGAGAGAG[<br>G/A]AAGAGAGGGAAACACTGTAGATAGGGAGCTCCTGGTAGCTTAGGCCTTAGAGAGAG<br>AGAGAGAGAGGGGTCAAAGGGTAAAGAAAGGCTTTTTTCTTCATTCAATAATTTCAATGGT<br>TTTTTGTCGCCAAAACCAAGAGAGGTCCAAATCACTAAACAGTTCTGAGGTCTTGCACCTG<br>TC |
| >Gm15_9<br>432383 | GATCCGAAGGAGGAGAGAGAGACCCAAATGGAAAAAGAGTTAAACTTGAAGGGTTATGG<br>AGAAAACCCAGGTTGGGAAGGGAAGAATTGGAAGAGGGGAAAGTAGGAAGAGAACAAAA<br>GAGTACCTAATTTGAAGGATCAGAACACAGCTTCGTAGCTTTTGCAGAGAGAGAGAGAGAGA<br>A[C/T]GAGAGGGAAACACTGTAGATAGGGAGCTCCTGGTAGCTTAGGCCTTAGAGAGAGA<br>GAGAGAGAGGGGTCAAAGGGTAAAGAAAGGCTTTTTTCTTCATTCAATAATTTCAATGGTT<br>TTTTGTCGCCAAAACCAAGAGAGGTCCAAATCACTAAACAGTTCTGAGGTCTTGCACCTGT<br>CTG |
| >Gm15_1<br>5214016 | TTGTTAATAATATAATGCCAAGAGGCATGAAGAATTATTTGTAAACAAAAACAATGTCTGAA<br>ATTACCTGAACACAAAGAACAGCAGCTTTGTGACCCTCAAACTTGTGGATGGGTGATCCA<br>ACTCCATTAGTGGTGAGATTGCGGCGATCAAACATGCGAACAGAATTGTCTGCTGAC[A/T]<br>TGCAGAGATGTGGCGACAAGGCAAGTGGGGATGTCCAAACTAGTGTACATGTCCAAACTA<br>AAATGATGAATTAGTGACAATGAGAACTATACAACAGCAGAACATACCCGGTAAGAATCAG<br>ATTATCATCATGTGGATTCCAGTCCACACAGTGAAGATCAGCATTATGAGCTTTCTCAA |
| >Gm15_1<br>7582711 | CATGGTCTGCATTCTGTCACAAGCCAGCAACTTTTCTCTTTTTTGACAACCCGTTTTTCTTC<br>TCAAATATCTTTCTCTTCTCGATTTGCTTTTGGAATGACTGTCCAACCAAGGATGGGGGTT<br>GTTTCAATGCAAAGCTTTTTGCTACGTGCCCCAAGTGGAGTTTCTTGATCATAAAT[A/T]CT<br>CTTTTCAGCTCACCGCGATGGGCTGTGTATGCACGAACCCAAGAGCAAAATGCCTTCCTG<br>GAAAGTTCATCCATCTCGGGCTGAAAAAGGACAAGGCATAAATAGGTTTATCTGCAAGGG<br>ATAACTTTTAAGAAATCCAATGGTAATGATTCTACAGTTAAACTTTGATGACATGTTT |
| >Gm15_4<br>6990101 | NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN<br>NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNTGTCCGAAGACGACTTACCCTA<br>CCATCTCCGACTCACCCCCAACGGCGACTTAACCACCGTCGGCCGTTACAACTTTAACGG<br>CC[A/G]ATTGAAATCCACAATGATCGCTCACCCCAAAGTCGACCCCGTCACCAACGACCTC<br>CACGCGCTCTCCTACGACGTCGTCCAGAAGCCTTACCTCAAATACTTCCGCTTCTCCCCA<br>AACGGCGTCAAATCCCCCGACGTCGAAATCCCTTTGAAAGAACCCACCATGATGCACGAT<br>TTCGC |
| >Gm15_4<br>6990104 | NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN<br>NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNTGTCCGAAGACGACTTACCCTACCA<br>TCTCCGACTCACCCCCAACGGCGACTTAACCACCGTCGGCCGTTACAACTTTAACGGCCA<br>AT[G/A]GAAATCCACAATGATCGCTCACCCCAAAGTCGACCCCGTCACCAACGACCTCCAC<br>GCGCTCTCCTACGACGTCGTCCAGAAGCCTTACCTCAAATACTTCCGCTTCTCCCCAAAC<br>GGCGTCAAATCCCCCGACGTCGAAATCCCTTTGAAAGAACCCACCATGATGCACGATTTC<br>GCAAT |
| >Gm16_2 | CTTCTGACAAACCTTCAGTACCATGATTCCAAGGTTCTGGAGCACGCCTCTGTCTGTTTGA |

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| 5690145 | CTCGAATAGCTGAAGCTTTTGCGTCAAATTAGATGAATTGTGCAACCATGGACTTGTAACA<br>CAAGCTGCCTCCCTCATATCTAACAGCAGTTCTGGGGGGTGGTCAGGCTTCTCTCAGC[A/C]<br>TGCTGACATATACTGGTTTAATCCGACTTCTTTCAATCTAGTTAGTTTTATTTTGGATTTTCT<br>TTTCTATATATATATTCATTTCTTGGGGATATGTATATATTTGTACTATGTTCCTTGCAGGAG<br>GAAATTCAATCGGAAATCAGTCCTTCCATGGAGAAAGGAAGAAAAGGTTTTATT |
| >Gm16_30464934 | TCTCTCCCTCCTCATGAGGAGAAAAAAGAAGCTTTCAACTTTCCTATTATTCATCCAACAC<br>CATCTCAAAATCGAAAGGAACAAGCTTCACCATCATCATCACCCTTTTCACTCCTCATGAG<br>TACCAACCAAAACACCACCTTCTTCCCCCTCCCACATGGCCAAATAACTACTTCTGA[T/C]T<br>TTGTTAATAGCCAGAACAATCCATCCCAGGCTACAAATCAAGGTAAACTATATATTATTGC<br>CAGGTTGATTATATATCATATTATTCTAATAATTCATATTACCATCGATGTTATTATATGGTC<br>CTCTCAATTATATATATATCATATCATATCATATCAATAATCTGGATCCACATCT |
| >Gm16_30539483 | GGTTTGCGGAAACTGCCAGACTGTGTTGTGCCAACCAACAGGCGGACGGGCAAGGTTAA<br>CCGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAATGGTTTGTTAACCAGACTTTTCTTT<br>GTCAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGAAATGGAATCCATTTCCGTTATG[G/A<br>]TATATTAATTTTGTTAAATTGTAAGACAATATCTCTCTCAGCCTTCCACAAGACATAGTAGC<br>CAATGTTGAATTTTTCTTTATTAAAGTGGATGTGGTTTTGTTCGACAACATTTACTAAAATC<br>AATATGGTTTAGTTTGATGGTTATTTTTACAATAACATGTTTTGTATGCTCTGATG |
| >Gm16_30539518 | CAACAGGCGGACGGGCAAGGTTAACCGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGA<br>ATGGTTTGTTAACCAGACTTTTCTTTGTCAATGATTGAAAATTTTCGGTTGTTAGGTTTTTG<br>AAATGGAATCCATTTCCGTTATGGTATATTAATTTTGTTAAATTGTAAGACAATATCT[C/T]T<br>CTCAGCCTTCCACAAGACATAGTAGCCAATGTTGAATTTTTCTTTATTAAAGTGGATGTGG<br>TTTTGTTCGACAACATTTACTAAAATCAATATGGTTTAGTTTGATGGTTATTTTTACAATAAC<br>ATGTTTTGTATGCTCTGATGACGTGTTAGTGTCAATAATGTACATATGAATTTTG |
| >Gm16_30539519 | AACAGGCGGACGGGCAAGGTTAACCGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAA<br>TGGTTTGTTAACCAGACTTTTCTTTGTCAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGA<br>AATGGAATCCATTTCCGTTATGGTATATTAATTTTGTTAAATTGTAAGACAATATCTC[A/T]C<br>TCAGCCTTCCACAAGACATAGTAGCCAATGTTGAATTTTTCTTTATTAAAGTGGATGTGGTT<br>TTGTTCGACAACATTTACTAAAATCAATATGGTTTAGTTTGATGGTTATTTTTACAATAACAT<br>GTTTTGTATGCTCTGATGACGTGTTAGTGTCAATAATGTACATATGAATTTTGA |
| >Gm16_30626524 | TATAATGAGGATGGTGTCAGGGAAGAGGTACTATGGTGAAGACTGTGATGTGAGTGATGT<br>ACAGGAAGCAAGGCAATTTAGAGAGATCATTAAAGAGTTGGTGACGTTAGGAGGGGCTAA<br>TAACCCTGGGGACTTCTTGGCTTTGCTTAGGTGGTTTGATTTTGATGGTTTGGAGAAGA[A/<br>T]ACTAAAGAGGATTAGTAAGAGAACCGATGCGTTTTTACAAGGACTCATTGATCAGCATC<br>GTAATGGAAAGCATCGTGCCAATACTATGATAGATCATCTTCTTGCTCAACAGCAATCACA<br>ACCTGAATATTACACCGATCAAATCATCAAAGGACTTGCACTGGTAATTAATTAATTATT |
| >Gm16_31191863 | CAACCCCAATCCAGTGATGCAGCTCATCTCCCCTGCATCCTCCACTGGTGAGAACACGCA<br>GCACAACGCTGCCAACACCTCCAAGGCATCATCGGATTCCGAGAATTTCGCTGAGTCGGT<br>GATCAAGGCTCCTAAGCAGGCCTCTGGGGAGCACAAGAAGAAAAAGAAGATCAAAGTGA[<br>A/G]GTTCCCATCAGGTCAAGAGCGGAATGCACCATCACAGGCAATTAGGAAATGCTTGCA<br>CTGTGAGATAACCAAGACACCACAGTGGAGGGCAGGGCCAATGGGGCCGAAAACACTCT<br>GCAATGCTTGTGGCGTGCGCTACAAGTCAGGCCGGCTTTTCCCCGAATATCGCCCTGCA<br>GCGAG |
| >Gm16_31204160 | ATGTACTACCAAGCAAGGGGTCACATGCCACCTAAGTTCGAATTTCATATTTTCCAGGAAT<br>CAAATTGTTAGTGATTGATATTTTTAGTGGTCAAAATGAATATTTAAAATAAAAATAAAAATA<br>AAAGTGAAAAGGAAAGCATGAGATAGATAATAGAGGAAACAACGTGAGAGTTCCA[G/A]AG<br>GAGTAAAGTAAAAGCTTTTGTAGATTCAGAAACCCTCACTTGTTGTTGGTGTGGTTGTGTT<br>TTTGCATGCTTCGGACATGTCGATGGCGATGGTCCACCCTTCGGTTCACCCAATCGAAGC<br>CCCACCCATGACTGAGCATGCAATTGCAATTGCAATGCCCAGACACACTCTGAAGGA |
| >Gm16_31204451 | CCCAATCGAAGCCCCACCCATGACTGAGCATGCAATTGCAATTGCAATGCCCAGACACAC<br>TCTGAAGGATACGCAGGGCATGCCCGGCACCCTCGGTGGCTTCCTCTTGCGCTTCGCCC<br>AGTTCTCTTTCGCCCTCGTTTCCCTCTCCGTCATGGCTACCACCTCCGATTTCCCTTCTG[T<br>/C]CACTGCCTTCCGGTATTCATTAATTCCCCCCTTTCCTTATTTTCTGTTTAATCGTGCTTA<br>TTTTTAATTGGGTTTGTGGTAATTGTTGATTTGGGCTTGTTTTTTGTGTTCAAAATCAGCAC<br>CCCAGATTTTATTTTTTTTCAAGTGGGTTTTATCAAGGGAGCAATGAAATGAACTCTT |
| >Gm16_31225684 | TAACAAAACAGATCATATATCTGCCATTATTCTAAAACAGAAAAGGATAGTTAAAATAAAGA<br>ATACAAGGTTACTCCAGAATAACGATGTAGTAAAAGGAAAGTATAATGTACAAAGGTTTCT<br>AAACAATACAATATGGTGAAACAAATAGGATACCTGCATAATTTCAGGTGCATCAG[C/T]CC |

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| | CACACATTGAGGCTCCGAGAACCTTATCTGTCTCAGCATCAACAACAAGCTTCATAACAGT<br>TTTTTCTTGTCGCCTATTTGAAGAATATCAGCAACCATAATCTAGATAAGAAAGTTATGCTG<br>CAAAGAACATAACTAATACTGGGTCCAACTGAGATTGAAGAGCATGTGATGATAA |
| >Gm16_3<br>1229414 | ACAAAGTGATTGATTTTGTATTTATCATTGTACCCAACTTACCTATTATAAATAGCATTCAT<br>GTTTGTGCCTCCAAGACACAACGTTCAGATATTTCTTCTCTATAGTATCCTTACCAGTGGC<br>AAACAGTACAGCATCCGCAATCAGCTCTTCACCATGATCTGTAATAACTTTAATGC[A/G]GT<br>CCTCTGTTTTGATCAACTAAAATAATGAAATTTGTTACCATTAGCTAAGCCTCCAACCAAAG<br>CAAATGAAAAAGTTCTACAAATGTGAGGTTGCAAACCCCTAAACCCAAAGGAAATACCTGT<br>GTCAAATTGGTCCTTGGATGCAAATTAATTCCCCTGCCTTCAAGATTTCTTGCCA |
| >Gm16_3<br>1461554 | TGCAGAAAATGAAGGAAGATGTCATGCTGTTGCAACCTGCTTAACCAGGAAATTATCTCTT<br>CCACCCTCTACATTTCACTCTTTTCTTGCACCATCATCATCCTCCAAAGTGACCCCACAAC<br>CTACTGGTTCAAGTAACAACTTGATACCTGGTACACCGCGGCTTGTACGAAGCCGTG[G/A]<br>CGTGACAAGGGACAGAGTAAGAAACTGGAATTTTGATGAAATTGCAATGGAGTCCTAGTC<br>TAAACTATAAGATAGAATAAGACTAGGGAATTTTCTTGTGGGATAGTTTATAGCATGTTATT<br>GCTATTTTGCCCCTTTGAATTTTGTTATGGGTGCAATTTATCTCTTTCTCTAGTTTTC |
| >Gm16_3<br>1475163 | TATAAGTGTTGTTTTCAAATATTAAGGAGTTGTGGGGTGCGAGCGTGATTTTCTCGTTATA<br>AAAATAAGAAGGAAGAGTGATTCAAATCTGAAGCTGAACCCTAACTAGCTGAGCAGACGG<br>AGGAGAACTCGACTGAAGCTGCCTCTGCGACGCCGTTTCGATTCAGCCTCAGACATTT[T/<br>C]TGTAAGTTCATCGTTTCACACTTTACACAAATACCCTATTCTTCGCATACTTCGTCGCTG<br>CAACCCCGAACAACGATAACCTAATCAATTTGGCTTCGCCCCCTCTTTTTCTCTTCACAAA<br>CAATAACAATTCACGTGTGATTGATTTCTCCAGTGTTTTACGAGTTTCAAAGATGCTCG |
| >Gm16_3<br>1476359 | CATTTATCAAAAGCCCAGGTTAGCAATGCAAAACAGTGAAAGTGTCTGCTTGCTGCTGTAG<br>GTTGCAGTCATGGTGCAAGAAAATGGCAAGAGGAAGAAACCAAACATTCTGGTGACTGGC<br>ACACCGGGGACAGGAAAGACAACTGTGTGCACTGCTCTAGCTGAAGCCACCCAGCTCT[A/<br>T]TCACATCAATGTCGGAGAATTAGTCAAAGAAAAGAACTTGCATGATGGATGGGATGATG<br>AGCTTGATTGTTACCTTCTTAATGAAGACTTGGTAAGCTATCAATTTATATAATTTGGATCA<br>TTCCTATATGCTTGTGTTTGAGATTTAGCTCCTCTAAAGTAAAATGAGGAGATGTGTAA |
| >Gm16_3<br>1516052 | TCGTAAATTGCAATATGGGGATCTTTTTTGGATTTTACTTGTTTTATTATACCTGACTTTTAG<br>TCAATCGTTCAGCAATAGGTATATTAAACTTGGAACGCTACATGGACAATCATTTTACTGTT<br>TTGTTTATCCTAATAAAAAAAATTGTACTTTTCATCAATGACATGTAGGAAAGC[C/T]GACAG<br>GCGAGTCCTGACAAGAATCAAATACTGTACATGGAGGAGTTGTCGTTAGTTTTAAATCAAG<br>TTGAATCCATTCAAGACATTCTTCCTATAATTTCTGTCATTCTTGAGGTAAATCTAAGCATT<br>AGCATTTTATTTAAGAAATGTGGCTGTTTACCCATTTTTTCATTAACCTGTA |
| >Gm16_3<br>1516059 | TTGCAATATGGGGATCTTTTTTGGATTTTACTTGTTTTATTATACCTGACTTTTAGTCAATCG<br>TTCAGCAATAGGTATATTAAACTTGGAACGCTACATGGACAATCATTTTACTGTTTTGTTTA<br>TCCTAATAAAAAAAATTGTACTTTTCATCAATGACATGTAGGAAAGCAGACAGG[G/T]GAGT<br>CCTGACAAGAATCAAATACTGTACATGGAGGAGTTGTCGTTAGTTTTAAATCAAGTTGAAT<br>CCATTCAAGACATTCTTCCTATAATTTCTGTCATTCTTGAGGTAAATCTAAGCATTAGCATT<br>TTATTTAAGAAATGTGGCTGTTTACCCATTTTTTCATTAACCTGTATAAGTCA |
| >Gm16_3<br>1827645 | GCATGTGTTGCAACTTGTTTACTAGCAACTCTTTCTGTATAAATACCATATACACACAATGA<br>AATGAAAAGCTTGAGTTTCTTTCTTTCAATTATTCTAACAGAGGGTCGATCTAAAGTATTTA<br>TGGGAAGATCATGATTAGGGCATTTATTTCCTTAATAAGCAAGAGAAAATGGACA[A/C]AAT<br>AGAAGCACATAATACTGAACACTTTATCCTTATTACATGAGTCATATGTCAAACAGGAAAC<br>AACAATCCCCAAAATAGAACACACCCATATCCTTAGCAATTAAACAACACCACACAAGAAG<br>AACTACACATAACTTACAAACTTTTGCTCCATTCAAAACTGATCAACCAATTGCA |
| >Gm16_3<br>1827884 | GAAACAACAATCCCCAAAATAGAACACACCCATATCCTTAGCAATTAAACAACACCACACA<br>AGAAGAACTACACATAACTTACAAACTTTTGCTCCATTCAAAACTGATCAACCAATTGCAC<br>CACCTCTTCCACCACAGACGTCAACAAAGACTTCCTAGCATTCACCACATTGCACTT[A/C]C<br>CACGAATTTCACCTTGATTTCCAGTGAGCACATCCAATTGACTCAACTTTATAGTAGCATC<br>CACAAACTTCTCAAAGAACAACGTTTGGTTCAACGCAAATGCATTGACCAACCCCTTAGTC<br>CTCTTATCATTGAGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGGTTCATTAGG |
| >Gm16_3<br>1827991 | ATCAACCAATTGCACCACCTCTTCCACCACAGACGTCAACAAAGACTTCCTAGCATTCACC<br>ACATTGCACTTGCCACGAATTTCACCTTGATTTCCAGTGAGCACATCCAATTGACTCAACT<br>TTATAGTAGCATCCACAAACTTCTCAAAGAACAACGTTTGGTTCAACGCAAATGCAT[T/A]G<br>ACCAACCCCTTAGTCCTCTTATCATTGAGCAAGTCCTGGTCAGAGGTGAACACCCCTTGG<br>CGGTTCATTAGGTCAAGGTAGTATTTGTTGTCGAACACAGTCGGGGTTCTGATGTCCAAG<br>TTGACGGTGTTGCCGGAGTTTGCGTCGGGGCAAGTGGATTGTAGTTGCTTGGCTAGGGT |

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| >Gm16_31828137 | CAAAGAACAACGTTTGGTTCAACGCAAATGCATTGACCAACCCCTTAGTCCTCTTATCATTGAGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGGTTCATTAGGTCAAGGTAGTATTTGTTGTCGAACACAGTCGGGGTTCTGATGTCCAAGTTGACGGTGTTGCCGGAGTTTGCG[C/T]CGGGGCAAGTGGATTGTAGTTGCTTGGCTAGGGTTTTGTCCATGTTGGGGTCGAGAGGGGAGAGCCTGTTGAAGAATGTGCCGCAATGGGCACGACCAAAGGTGTGTGCGCCGGATAAGGCGACAACGTCGGTGACATCAAAGTTTTTGGCGGCGAAAGCGTCAAGGGTCACGCCGGTGG |
| >Gm16_31829738 | ATATCACAAAGAAAAGCTTCAAAACTATAGTTAGTAAGAGCAGAGGGTTTTGAGAACCAAAATAGTAGTGCAAGTAAAGGTAAGAGGGATGAAGAGATTACAAGGAAAACTGAATCACGTGCTGCCAAAACAGTGATATCTGCGCAAGAAACGATCCTTCCACACTCCTTATGGATAAT[C/T]GCTCTGATGTCATCAATGGTTTGCAAGGCCTCAGTTCTGATGCCTCCGTTGGCTGGTTGGTCTCTTTCACTTGGACTCCCATCTAGCAGCAATGATCCATCACATCCCTATACAAATGCAAATTAAGTTAGAGGTAATATCTTTTTTCTATATATATATATGCATGCATATATATTAACC |
| >Gm16_31840753 | GTTGGGGGACTCGGCATTGGGACACGTAGCTATCAAATTGTTGTTGAAGTTTGGGTCGATTGGTGGGTCCGTTTCGATGGTTCTGTTCACTAGGGAGGGACAGTGGGCACGACCGTAGGTGTGTGCGCCGGAGAGAGCGACCACATCGGTGGCATCGAAACCTCTATTTCCGAATCCTC[C/T]CAGAAGATCGTCGGTTCGGAAGAATGGTGCCGGTAGGTTGTCCGGCGCGGTGGCGTTTGGTCCTAGGCCGTCTTTTCTTCCCAGTGGCACGTCAAAATCAGGGCCTCCTAACTGTTCAAATTACAAAGAAGTTACCAAAAGGAACAAACGAGAGATCAAGCATTATGTTTAAATGTGTTT |
| >Gm16_31840819 | GTCCGTTTCGATGGTTCTGTTCACTAGGGAGGGACAGTGGGCACGACCGTAGGTGTGTGCGCCGGAGAGAGCGACCACATCGGTGGCATCGAAACCTCTATTTCCGAATCCTCTCAGAAGATCGTCGGTTCGGAAGAATGGTGCCGGTAGGTTGTCCGGCGCGGTGGCGTTTGGTCCTA[C/T]GCCGTCTTTTCTTCCCAGTGGCACGTCAAAATCAGGGCCTCCTAACTGTTCAAATTACAAAGAAGTTACCAAAAGGAACAAACGAGAGATCAAGCATTATGTTTAAATGTGTTTTTAATCTCATTATAATGTTATAATTTGAGTGAAAATTATCTCTAATTTATATATTATAAATGATTT |
| >Gm16_31842815 | GAGCTACTCCACTGTCCTTCTCGAAGACATCCTCAAGATGCTTCCTTATAATCCTCTCAAGCTTGGGACATGTCAACAAATAGTAATTCCATGATAGTCCAGGGACTAGTTTCCCAGAGGAAACATGGATTTGAGAAGCCAATACAAGGGAAGAAATCAAGAGCAAAGAGTGAAACAAA[T/A]GACTAACCCTAGCCATGTTTGATTAATTTGCTATGAGTGTGACTTGAGATAACCAAAACTTAGAAGAGTTATTTATAGATTCAATATTGAGGTAACGTTCTTCGGTTGCTTCCCACTTCCCACCCACTAGTCTTCTACGTATAATATTTAAAACGTGGCGCAAGCGTTTTTTGAGATTTG |
| >Gm16_36812185 | GTCCCTCCATGATAGCCCTCCATGTAGCTTCCAGTGTGTCATCACCATCTGAATCCGGCAGGACATAATCATTGGTGCAACTTTCAAGTGAAGGTTGGATCATGAATTTGTCATAGGTCAAACCAGACTCTTCAATCACCTCTTCTTGTTCTAGCTCTTCTTCAACCACCTCTTCTTGT[G/A]CTAGTTCTTCTTCTTCTTCTTCAACCTCCTTTTCTTCTTCCTTAGGTTCATTGGTTTGGTTCTCTGACTCAGTTGGGTGGTTGGCAGTGTCTGAAATGACGGTGGTTGTGTGCTTAGGATCAGAGGGGTGCTGGTGAGTCAGAGAAGGTTTTGGGGGGGAAGTTGGAGGAAGCTGCAATGG |
| >Gm16_36812187 | CCCTCCATGATAGCCCTCCATGTAGCTTCCAGTGTGTCATCACCATCTGAATCCGGCAGGACATAATCATTGGTGCAACTTTCAAGTGAAGGTTGGATCATGAATTTGTCATAGGTCAAACCAGACTCTTCAATCACCTCTTCTTGTTCTAGCTCTTCTTCAACCACCTCTTCTTGTTC[G/T]AGTTCTTCTTCTTCTTCTTCAACCTCCTTTTCTTCTTCCTTAGGTTCATTGGTTTGGTTCTCTGACTCAGTTGGGTGGTTGGCAGTGTCTGAAATGACGGTGGTTGTGTGCTTAGGATCAGAGGGTGCTGGTGAGTCAGAGAAGGTTTTGGGGGGGAAGTTGGAGGAAGCTGCAATGGTG |
| >Gm17_3054922 | AACGCTCATAGGTTCATTAGTAGTTTGCAGAAGGTAAATTGCAGTATTCTATTAACTCAATCTCTACTCCATCTATAGTATTCTCAAATTCTGAATTAGTACATGTTATTTAGACATTATATGAATATAGGTCTGAAAAGTTGAAAACAATATGCAGGGTTATGACACGTTAGTAGGGG[A/C]ACGAGGAGTTCAATTATCTGGGGGACAGAAGCAGCGTGTGGCAATTGCACGAGCTATAGTGAAGAACCCAAAAATATTACTGCTAGATGAAGCCACAAGTGCACTGGATGCTGAGTCTGAAAAAGTGGTTCAGGATGCACTAGACCGTGTCATGGTGGACCGAACCACAATAGTAGTGGC |
| >Gm17_4444643 | AACTGGAGCAGTGGCTTCAGTCTTCTTGGTATGTATTTTTTATGTTTCCTTTGTTCAGACTTTTTTTACATGAAACTGGTATGATAAATGATATGGTAAAACTTATATTTATGTGTCTATCTTCTTGGCAGGGTTTTGGGTCCCTGTTCCTCCTACTTGCTTCTGGCGTTTATGTCTAA[T/C]ATAAACATTGAATTGGATGAAATTTTGCCAAGCAGATAGCTTTAAATGAAAAATTGCATTGGACGTTTTAGTTTGATATCTGACTCTAAGTTATGTTCATAATCTATCGATGACAATGTTGGTTGTGTGTAATGTTCAAGAAGAATAGAAGATTATGATATCTGAGATAGTTTTCAAACA |
| >Gm18_1 | ATCGGATTCAGGTGAAGAAGAAGAAGAAGAAGAAGAATATTCATCGGAGAAGGCCGAGG |

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| 330362 | ACGATGATGTTTGGTAATTCTCAACCTTATTAAAATCCTGAAACTCCGATGTCTCTGTCTCT<br>GCCTTGTGTGTATCTAGAACAATAGGGTTTTGAGTTTTGAGTTTCTGCGAATTGGTCC[A/C]<br>CAAGCTTTGACAAATGGCTTGAAGCTTCGCATCGACCGCAGAGGGGAGAGGCTTGTAGTT<br>CCCAAACTCACCGTACGCGCGTGCTCCATGGTGACGCAGGTGAGGGAAGTTGAGCCTCG<br>CGTTTTCTCCTCTTAGCTTAAACGCTGCGTTGTCGTAAGCCAACGCTGCTTCCTCTGCGGT |
| >Gm18_1330743 | ACGTGTTCGGTTCTTGGGGAGTCTGATCTCAGCGACCCACTTGCCCCAGTGTCTCTGCCT<br>CACCCCACGGTAAAGCTTCGTGGGCTTTGAAGAAGGAGAAGCCCGCACGTGCTTCATGG<br>GAATGGGCTTTGGGCTCAGAAACTGGCCTCGTGGAACCTGGATTCGGGCTTGAATTTGAA<br>[T/C]CATCTGTGATGGGGTGAGTTGGTTCAGTTTGATGGAACTAGCATGGTTTGGAGTTAT<br>TGAAACCTTTTGCTCGTAGCTTGTTGTTGAAGAGAAATTGGGAGAAGAAGAAAAGGAAGA<br>GAATGAAGGGTATGTAATGCTAGATGAATCACTTTTCATAAAAGGCTCAAGTGCTTTCATC<br>AG |
| >Gm18_1330746 | TGTTCGGTTCTTGGGGAGTCTGATCTCAGCGACCCACTTGCCCCAGTGTCTCTGCCTCAC<br>CCCACGGTAAAGCTTCGTGGGCTTTGAAGAAGGAGAAGCCCGCACGTGCTTCATGGGAA<br>TGGGCTTTGGGCTCAGAAACTGGCCTCGTGGAACCTGGATTCGGGCTTGAATTTGAAACA<br>[G/A]CTGTGATGGGGTGAGTTGGTTCAGTTTGATGGAACTAGCATGGTTTGGAGTTATTGA<br>AACCTTTTGCTCGTAGCTTGTTGTTGAAGAGAAATTGGGAGAAGAAGAAAAGGAAGAGAA<br>TGAAGGGTATGTAATGCTAGATGAATCACTTTTCATAAAAGGCTCAAGTGCTTTCATCAGC<br>TC |
| >Gm18_5842068 | TGTCTTATCCTGCAACCCAGAAAAGAAGGGTTAAATTCTTTAGCCTCCAAAACCGTAGAGG<br>GTCCTTCCCTGCCTCTTGAGCGCATAAACCACATCCATGGCAGTCACCGTCTTCCTCCTA<br>GCGTGCTCGGTGTAGGTCACAGCATCTCGAATCACGTTCTCCAAGAAAATCTTCAGAA[C/<br>T]CCCCCTGGTTTCCTCGTAGATCAAACCACTGATTCTCTTCACACCACCTCTTCTCGCTAA<br>CCTACGAATCGCAGGTTTCGTGATACCCTGAATGTTATCGCGAAGAACTTTCCTGTGCCT<br>CTTGGCGCCTCCCTTGCCCAAACCCTTGCCACCTTTTCCACGACCAGACATTTTCTCGAG |
| >Gm18_48861899 | CATAACAATTGTATCTTACTGATTTTTCTCATTTCATCGTATCTAAAATCTTAAATCTTCTAT<br>AATTGAGACATACACCATATCATGTAAAAACAAAAGAAAATTTTCAAGTGAGAAAAGATAA<br>GTAAAGAAAGTATATATATCACAGCTCAGTATAATGCAGAATCACCTAGTTTCCC[A/T]TCT<br>GCCATGGAGAAGGGAATGAGGTGAATTAGCAAAGGAAAGAAAACTAGACTCCATGTCTCT<br>ATTTCCAAAATTGGAGCCTGAACTCATCTTATCAAAGGATGAAGATGCAAGTGAGTGCAAG<br>AACTCATCAAACCCCTCATGGTGACTTATATCCCCTGGCTTTTTCAAGTCCTCTGG |
| >Gm18_48861902 | AACAATTGTATCTTACTGATTTTTCTCATTTCATCGTATCTAAAATCTTAAATCTTCTATAAT<br>TGAGACATACACCATATCATGTAAAAACAAAAGAAAATTTTCAAGTGAGAAAAGATAAGTA<br>AAGAAAGTATATATATCACAGCTCAGTATAATGCAGAATCACCTAGTTTCCCCTC[A/T]GCC<br>ATGGAGAAGGGAATGAGGTGAATTAGCAAAGGAAAGAAAACTAGACTCCATGTCTCTATT<br>TCCAAAATTGGAGCCTGAACTCATCTTATCAAAGGATGAAGATGCAAGTGAGTGCAAGAA<br>CTCATCAAACCCCTCATGGTGACTTATATCCCCTGGCTTTTTCAAGTCCTCTGGCAC |
| >Gm18_59613520 | GTGGGAGCTGGAGATGGTGGGAAGCTGTGAGTCCAAGTGGTGAACGTGGAGGCAGTCTT<br>CTACGGAGCCATCGCACAGTACTGAAGTTGTGGTGTGGTTGGACTTGGACAACACTCCTG<br>AAATGCTCAAATGTACCATAACCCACATCAGCAAACGCCTTGATGCTAATTGCTTCTTCA[A<br>/G]GTCTGCTAGCTACAAAGTCTTGAGAGATACTACTATTTTCATAAATTGCACACTGCATG<br>TATAATATCCACCCTTGATATTGATATATGGACTACCAAGGTTCCGCTACATTCGAGTGCC<br>AGTTAATTAAGCAAATTATTATATGTGAAATGATAATCATTGTCCGAACATTGAATAAAG |
| >Gm19_381220 | GTTATACAAGTGCACATAATATCAACTGTTCATTTCCTCATCAAAAACAAGGGGATTACTTA<br>CTTTAGTCTCTACAACGTGTTTTTCACTTTATAAGGGCCAGATCCAGCATTCAGATTTACAT<br>AAGTTTGTTAATTTAATCTACAATTGATGTCACTTATTGGTTTGGTGATAATGAG[A/C]GTGC<br>AGTGGTATGGAATCCCTGGGGTAAGAAGGCCAAGGCTATCCCTGATTTGGGAGATGATG<br>ATTACAAGATCATGATGTGTGTGAATTCTGCAGCTATCGATACCCCTATTCTCTTGAAGCC<br>CTCTGAAGAGTGGATGGGATATCAGGAACTCTCTACGGTTTCATCAAGCTATTGCA |
| >Gm19_1210520 | TTGCATTCCACTATGTGATTATAGGTGCTCATTACACTCAAGGAAGAAATTGTGCATGAGA<br>GCATGCATAACCTGTTGTGACCGATGCAAATGTGTCCCTCCTGGAACTTATGGTAACAGG<br>GAAAAGTGTGGCAAGTGCTACACTGACATGCTGACTCACGGCAACAAATTCAAGTGCC[T/<br>C]ATAGAAGAAGCCTAATATCTAGTAACTTACCTAAGCTTTTTTGTTAATCAAGTTTGAATCA<br>TGAGTAATGTGGTTTGAGTTGCTAGTGTATTTAATAACCGAGAGTGATAATCATAATTGTA<br>CAAGCTATCGTGTTAATCAAAATAGTCAACACTGTTTGTGTTGTCTATAGGATCCATT |
| >Gm19_3750352 | TCAAGTGCAGCGTGGTGGGTTGTGATTCCAATCGAAAAGCCTTGGTTGGGGAAGAGGGT<br>GAGTTGAAGTGCTAACACGGAAGCTTCTTCATGGGAAATGGTTAAGTGGGGTATTAGGTT |

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| | TTGGAGGTGGTGGTTGACTTGAGAGAGGTTTGAAGAGAGGGTGTTGAAATCTGCGTTGGA[G/A]TGGGCGATTGTGAAGGGGATGGTGTTGCCGGGAGTGTAGGTTATGAGAGGGAGGGGTGAGTGATTGGGCCATGTGATGGTGCCGGCGAGAGGAGGGAAGTGGTGGAGAGTGAGGGAGAGGGAGTGTTTGAGATTTGGGAGAACGGTGGTGTCGAAAAATGATGTTGTTGTTGGGTTTGGG |
| >Gm19_34933973 | TTCGCACAGAGCGGTGAACCAAATTACATAGAGAATTGAAAGGAAAGCGAAGAGATCGAGGAGCGAACCTGGGGTATCGGAGATCTGGAGAGATCCGAAAGCGAGGTTGATTGGTGAGGGGGAAAGAGAAGAGAAGGGTTGAGGAATAGGGTTTCCGGTTCCATGTTGGGGATTAGGGT[C/T]GGGAGATGGCGCAGAGGAAGAAGACGAAGATGCCGCTTGGGTTTGTGAGGGCAAGATGGACATGAAAGTTCTAGAAGGAGGGGTTTAGGGTTGTTTCGTAGGTTCAGCTTCTATTCTACTTAACCAAACTATGTCGAATGTACTTATTGTGCTGGCTGTGTCTTCGCGGCTCCGTGGGTA |
| >Gm19_40301455 | AAATGAAAATGTAATACTAATCGTTAGTTGTACGAACCACCAATAAGCAGGTTGGTTGAGAGTAATGTTAGAGACTTGAACGTTGTTGCAATCGAGAAAACCGATGAGCCTGGGTCTGCATTCGTCTCCCAAGCAAGCCCCTGTTTGATTCCAACTAACCATAACGTTCTTCCTCGGAT[A/T]TTCCCTCACCACGAACTTCGCAGCTTGCCCGTCCACCGCTCCGCCGCCGCGGATTCCCACGTCCGTCGCGTTCTCCGCAACAACCACGTACCACCGCCACGACTCCTCGGGGTAGTCCTCCAGCCTCGTGCCGCCAAGGATGGTGGCCCCGGACTCCACGTTCAGCACCACGCCGGATTT |
| >Gm19_42879589 | TTGAAAAACCCTTTACCTTCTTCAAGTACTTGTCTACAAGCCAAGGCACCTGTGACCTGCTCTTGAAGCCACCAAAAGCTGTTCCTTTCCAGACTCGTCCACTCACCAACTGGAAAGGACGGGTTGATATTTCCTGCCCTGATGCTGCAACACCTACAATAACTGACGTCCCCCAGCCC[A/T]GGAAATTATCAAAGAATATTTCATGCCTAGTGTAATAATGTTCAAAAATTGTGTCAATATAACAGCAGCAGCATTTACCTTGTGGCAGCATTCCAACGCAGCTCTCATCACGGAGACATTTCCAATACACTCAAAGCTATAATCAACTCCACCATCTGTGCGATCAATTATGACCTGCTG |
| >Gm19_48261364 | CTTGAAGAAAGGCCGTTACTCTCGCCGCCTTGGCACCGGCGCTCCCATTTATCTCGCCGCCGTTCTCGAATATCTCGCCGCAGAAGTAATGATAATTTCACGATTCGATTCATCCTCTTCTCGTTAACAGTTAAATTATATCAAATTAATCAATGCTTACGGTGGAATTTTCGAAATGC[A/G]GGTGTTGGAGCTGGCCGGGAACGCTGCACGTGACAACAAGAAGAATAGGATTAACCCTAGGCACGTGTTGCTGGCGGTGAGGAATGATGATGAGCTGGGGAAACTGCTTCAAGGTGTGACTATTGCTAGCGGTGGAGTGTTGCCGAACATTAACCCGGTTTTGTTGCCTAAGAAGAGTAC |
| >Gm19_48638348 | ATTTGGTTTGTTGATGATGTGTGTTTTTGTTTAGGTTTTGGAATTGGCTGGGAATGCTGCTAGGGATAACAAGAAGAATCGTATTGTTCCTAGGCACATTCAGCTTGCTGTGAGGAACGATGAGGAGCTGAGCAAGCTTTTGGGATCTGTTACCATTGCCAATGGAGGTGTCTTGCCGA[G/A]TATTCATCAGACTCTGCTTCCCAAGAAGGTTGGCAAGGGGAAGGGCGAAATTGGATCAGCTTCTCAAGAGTTTTAGGGTTTTTGTTAGGCCTATTTGGACTATAGTTTTTATTTTATTGCGGTTGTAATATACATGTTTTGGTTAATTTTTAGATATCTGCTCTGAGGAATTAAGTGTTT |
| >Gm20_39267808 | TTGCCCCACCGTTGCCTCCAAAGATAAGCAACTTTCATCCATAAATACCCTTCATTGTTAGCGTGTGTACTCCACATCCTCCATTAGTTACCCCTTCCTCAAGCACACGTTCACCCTTTTTTTCATGGCATCAGATCACTCGTCCGTCAACCAACCCAAATTTGTCTATCCAAACAATG[A/C]ACTTGAGCAACAAGAAGCCCTAGAGGTCGAAACCAAGGACTTTGACTACTCAAAGAGATCTCAATGGCTACGTGCTGCTGTTTTAGGTGCCAATGACGGGTTGGTCTCAACAGCATCACTAATGATGGGTGTGGGAGCAGTGAAGCAAGACATCAAAGTCATGATCCTAACAGGTTTTGC |
| >Gm20_39367321 | AGTAGTAGGAGTAGCAGCAGCAACAACACTGTGACCATTATTCATTTTCTGAATTTCAATGTTGTTATTATTTGACATCATCAGTGGTTGTGGAGCTTGTTGTGGTGGTGGTTGTACTTGTTGTGGAAGTGGTTGTTGAAGGAAATTGGCACCAGCTTTTGTTGTGGTGGAATTTTGGT[T/C]TTGACCAGATAACTGTTGCAAAAAAGCAATAACTGCTGCATTTTTTGCTGCTGCGGTTGATCTTTCTTGGACAAGAAGTTCGTGTTCTCTATTGATCCTTGCCATTTCTTGGATCCTCCAAGCCTCTTGTTGCGCCACTTGTTCTCTCTCCCTATTGTCAATGGCTTCGAGGAACCTCTT |
| >Gm20_39367375 | TTCAATGTTGTTATTATTTGACATCATCAGTGGTTGTGGAGCTTGTTGTGGTGGTGGTTGTACTTGTTGTGGAAGTGGTTGTTGAAGGAAATTGGCACCAGCTTTTGTTGTGGTGGAATTTTGGTGTTGACCAGATAACTGTTGCAAAAAAGCAATAACTGCTGCATTTTTTGCTGCTG[G/A]GGTTGATCTTTCTTGGACAAGAAGTTCGTGTTCTCTATTGATCCTTGCCATTTCTTGGATCCTCCAAGCCTCTTGTTGCGCCACTTGTTCTCTCTCCCTATTGTCAATGGCTTCGAGGAACCTCTTCTGCATTTCCTCTTGCTTGGCCAAGACTTGCCTCGTGAGCCTCCTGAAGTAGTC |
| >Gm20_4 | TAAAAATAAATAAATACAAAGTTTATGCTAAATTACTTTGAAGCCCAACAATAAAAAAGAGA |

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| 1862066 | ATATTATTAACCCGAGGTATATAAACATATCCGAATGAGGACGCACACTAAACTGGGGGG<br>ATATGCTCGATTCGAGGGTGACGAGGGATAGCAGATCTGAATCTCATCTTCCCAAAA[C/T]<br>CCTCTCTCTTCTCTGATCTCATTTTAACCCTAACCCTAACCCTAACCCTAACCCTAACCCTA<br>TCAGAAGAAGATGTTGACGAAATTCGAGACGAAGAGTAACAGAGTGAAGGGACTGAGTTT<br>CCATCCGAAGCGGCCATGGATCCTGGCGAGTCTCCACAGCGGCGTCATCCAGCTCTGG |

**Supplemental Table S3.** SNPs identified by Method 1 on the four-library comparison

This table contains 261 SNPs identified using Method 1 on the four-library RNA-Seq comparison between the Clark/IsoClark 19-day root and leaf experimental data. The file contains a unique SNP identifier that includes the genomic location. The sequence surrounding each SNP based on the soybean Glyma1.01 genome assembly is also provided.

| SNP | [Clark/IsoClark] |
|---|---|
| >Gm01_55645316 | GCCGATTAGTCGCCATCACTGGCCGTGTTCAGAAGGTCAGGGACGAATTGGAGCACCTGC TCGACGACGACGATGATATGGCTGAGATGTATCTCTCTGAAAAGCTAGCCGAACAAGATGA CTTGGAGAAGGCGGAGGATACCTCTTCTGCCGACGATGTTGATGATCACATTGACAGG[A/C ]ACCTCTTCCTTCCCTTTTGACTCTCCTTCTTTCCCTTCTAACCTCTATATGTAATTCATCCTT CTATTTTTTTTTTTTTTATTTAGGACCGCTCCTGAAATATCGTTGGACAATGTTGTTGGTAGG GACAGCCATGGAACTCGCGATAGCGCCACCTACAGCGCCGTCACCAAGCAACTT |
| >Gm02_42632633 | GTTGGCATGGCCATCCACCAAGGTCACTTCTATGTCCGCCACGGCCCATGATGAAGGGTT CCGTGCCATGTTGTTATTGGCCTCGCACGTGCCAGGGTAGCCTTTGCTGCTGCTGCTGCT GCTGCTCTGTGTGGCACGTGTCGAGTACTGGGGGAACATGAAGAACTCAGAAAAGGGTG[ A/C]TGAGTCAGAGAAGCCACTACCCTCCTTTGTTCTCTTCTTCTGGCCCTTCATGCACTGCA GAAGCTGCTCCAGCTCCTTCACGAAGTTAATGGTGCCACCAATAATAGAGGCTTGATCACC CTGTTTTTTTTTTTTTTTTTAATAACCGCACATGTGGCACGGTTAGTTGGCTAGCTAGTA |
| >Gm02_42829778 | CAGCACCGACGGCGGACTGTGCCTCACGTCGAGCGCGTGCCTCCCACTCGCGATCTCGA GCAGCAAAACTCCGAAACTGAAGACATCGCTCTTGGAACTTAGATCTCCCGGCGCAAGATA GCACGGGTCGAGGTATCCTAACGTCCCCGCCGGTGGCACGCGAGAATCCGCCACGTGTC[ T/A]CCTCACCGCGAGCCCGAAGTCACCGAGTCTAGCGTTCCACTTTTCGTCGATTAACACA TTGGACGATTTTATGTCCCTGTGAATAACTGGCGGTTCGGAAGAGTGTAAAAGGCGAACCG CTTTCGCGACCTGAACCGCAAACCGGACTCGCGCGGTCCAGCTTGGGGGTCGAACCGGTT T |
| >Gm02_42830291 | TTCGATTTCGTTTGAGGTTTTGGGTTTGGTTATTTTGACGGCGGCGACGAGAGCGCCGCCG TGGAAGGCGGCCTTGTAGACTGTGCCGTGGCTGCCTTTACCTAGGAAGGTGTCGGCAGAG AAGTTGTTGGTGGCGTCGAGGATGTCGGAGTAGGCGAAGTGTCGCACGGGCTGGGCCT[C /G]GGCTGGGCTTTTGGGCTTTTTCTTCTTCTTGAGGGAGTGAGGGTCGCATGTGGCTATTG CGGACTCGGCGTTGCAAGTGAGGTAGGGCATTGTGAGTAATGATGGAGAAAACTAGAGAA GAGAGAGCATAACTAACTCTGAACACTGAACAGATACATTTTGATTTAAAGGGAAATCAAT |
| >Gm03_36398914 | AATGATATTTTAAGCATCTTAGGCTTTAGAATCATGTTTAAAGACTACTGTAGTCAAGTAAAG CTAATAACTCAAAATACATACATATTCCAGTGACAGAAAACAAGGATTATGTATGTAGTGTC CTGCCAAACCAGTTTCCAGTAAAAACAAGCTGCATGTTTCTTATTTCAAAAGCT[A/C]ACAGG AAGGTGATAATCGTGCAGTACACAGCATACAACTTACATAAAAGTTTCTTATGGCATAGAAA ACATGTAGTCCTCCTATTCGTACACAGTCAAGTTTAACTAAACAAACAAAGAAACTCAAAGA TGAGAGTATAGGAAATACAAATACAATACTAGAGTCATTCTGTACAAAAGG |
| >Gm03_36398969 | AAGTAAAGCTAATAACTCAAAATACATACATATTCCAGTGACAGAAAACAAGGATTATGTAT GTAGTGTCCTGCCAAACCAGTTTCCAGTAAAAACAAGCTGCATGTTTCTTATTTCAAAAGCT CACAGGAAGGTGATAATCGTGCAGTACACAGCATACAACTTACATAAAAGTTTCT[T/A]ATG GCATAGAAAACATGTAGTCCTCCTATTCGTACACAGTCAAGTTTAACTAAACAAACAAAGAA ACTCAAAGATGAGAGTATAGGAAATACAAATACAATACTAGAGTCATTCTGTACAAAAGGTT TGGGTTCATCATGTAATAAGACAATACACATACTAAGACACATAATTCCTTCC |
| >Gm03_36399038 | CCTGCCAAACCAGTTTCCAGTAAAAACAAGCTGCATGTTTCTTATTTCAAAAGCTCACAGGA AGGTGATAATCGTGCAGTACACAGCATACAACTTACATAAAAGTTTCTTATGGCATAGAAAA CATGTAGTCCTCCTATTCGTACACAGTCAAGTTTAACTAAACAAACAAAGAAACT[C/G]AAAG ATGAGAGTATAGGAAATACAAATACAATACTAGAGTCATTCTGTACAAAAGGTTTGGGTTCA TCATGTAATAAGACAATACACATACTAAGACACATAATTCCTTCCCGCCCATCTCTCCTCGT ACTTTCCAAATGAGTAGGTAGTTGAAGGCATCCCAGTCAAGTGAAAGGGGTC |
| >Gm03_3641699 | GATGGAAGGTTCTTGCTTTTGTTTGTATATATACATACTATTATTGCTAGGAAATTGAAGACC TAAGATACAATAGAGATGGCAAAGCTATTTTTGAAACAGGCAAAGCAATACGCAGATGCAA |

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| 2 | GACCAAGCTATCCTCCACAACTCTTCCAATTCATTGCTTCCAAGACTCCCTCTCA[G/A]AAC<br>CTCGCTTGGGACGTCGGCACTGGGAGCGGCCAAGCTGCCAAATCTGTAAATTTTCTTTCTT<br>CTCCTTCTCTTTCTTAATTCTTTCACCTATATATATATATATATATATTTCTTGGTCAATTTC<br>CACAAGCACTCTCACATATTTTACACGGGCGTGAGATCCTGCTTAACCTAG |
| >Gm03_3641809 7 | AAATGGGTTGATGACAATTATAGAAGCATTGATTTTCCATTTGAGCCCGTGGATGGAGCTG<br>ATCACACAGGACCCTTTGAGTTTGTGACGGAAACAATGATGGATTTGGATGATTTCTTGAC<br>CTACATAAGATCATGGTCAGCATATCAGACGGCTAAGGAGAAAGGAGTGGAGCTTCT[A/C]<br>GCGGAGGATGTGGTTGAAAAATTCAAGCTTGCTTGGGGTGAAGATGCTAAAAAAGTTGTCA<br>AGTTTCCAATTTATTTGAGAATTGGAAGAACAGGGGATTCCTAAAGACATATGCAAATGGTT<br>GCTTTTACTGTGTGGGAGATGTGACGAGTACCAACTTTTATGAGTTTATCCATTGAT |
| >Gm03_3646037 4 | GACATTGCAAATTAAAATTTTCCATACAAGTTTCCTCAATCCTAATATAGTGATAGTGATAAA<br>TAGAACTAAGACAACAAATTAGTACTAGGCTCTGTCAATCTTCATAGGCCAATACTTTTACC<br>ACTCTTTAATAACTTATGACCCGATATTTGAAGGTGAGGATAACAATTGTAACA[A/C]GAAAA<br>TTACAGGAAATACGGATTTTATTACATGCACGTAAGAAACACATCAAATTTCCACTCTCAAG<br>AATCCAAAGAAAAGATAACAATGCATGCTCTCAAATCCTCAACATGCTAACTAACATCTTGC<br>CAATGCAACTTCCTAAGGATGAATATTTAGACAAAAAAAAACATTAAAGAG |
| >Gm03_3655394 4 | TCTTCACGACTCATATGATACTCGTGACAAAAGACATACTCAGCAACAACTTGAGGAACATT<br>AACAACTGGCTCCTTAATTTTGGTGCACCAGCAAGCACTGCAACAACCTTTCTGATCTTTGC<br>CATGCTCTGTGAGCAAAGGCAGTGGTCGTGCTCACCCATGTCTAGATGCACTATG[A/C]GC<br>ATCAGTGACATCAATCGCTCTTTGATGTGAACTCTCGTCCACTCTACAACCACCAATTATCA<br>TAGGTGAAGTCATTTTGTACATGAAAGTTAAAAAATAAGATGTTAGGCCGATTTTATTTAATG<br>TAATTGTGTGTAATAAAATACATATAAATGCAAATACATTTAATATACTTTTT |
| >Gm03_3655985 7 | TGTTTCTGCAGGTGGAAAAAACTCATAGATTAGAGTCCGAAATTCTAACTGAGAAGCTTTTG<br>TCAATATATGAGAAGCAAAGGATTTTCTAATCAAACGATCTTAAGTGCTCTGATGTTAAATTT<br>GACACCTAAAAGAGTCTTCACATATTTGTCATGCATGAATGGCAAGTTCGGAAA[A/T]TAGA<br>ATGGAGTAATCACATCACATGCCGCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGC<br>CGGCAGGAAGGTGCATGGATTTTAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAA<br>TGTTACAATCAGCCTCACGTAGCAAAGTGTGACACCCTCTTTTCTCACAAATA |
| >Gm03_3655992 6 | ATGAGAAGCAAAGGATTTTCTAATCAAACGATCTTAAGTGCTCTGATGTTAAATTTGACACC<br>TAAAAGAGTCTTCACATATTTGTCATGCATGAATGGCAAGTTCGGAAATTAGAATGGAGTAA<br>TCACATCACATGCCGCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGCCG[G/A]CAG<br>GAAGGTGCATGGATTTTAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAATGTTACA<br>ATCAGCCTCACGTAGCAAAGTGTGACACCCTCTTTTCTCACAAATATATGTACTAATAATGA<br>AAGGAATAGAAAGTTAGAATTAATGAAAAGTTTTAAAACACATTTAAATAAAA |
| >Gm03_3656000 2 | CATATTTGTCATGCATGAATGGCAAGTTCGGAAATTAGAATGGAGTAATCACATCACATGCC<br>GCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGCCGGCAGGAAGGTGCATGGATTT<br>TAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAATGTTACAATCAGCCTCA[G/C]GTA<br>GCAAAGTGTGACACCCTCTTTTCTCACAAATATATGTACTAATAATGAAAGGAATAGAAAGT<br>TAGAATTAATGAAAAGTTTTAAAACACATTTAAATAAAAGCATTTCAAAAAGGATAAAAGGTT<br>TACATTCGTTTTTCTAGCATTCTAATAAAACTTATTTAAATAAATAATAAAA |
| >Gm03_3661293 8 | GGAGGATCCGGATCCGAAAGAAGGCGGGTCGGAGCGTGAGACTAAAGATGGTTCCTTTTT<br>ACGAAAGAAGCGTTTGGGGCTTAGTTTGAGGTTTTTGGGGTTGATGGTGCTAATGAGCTTC<br>ATTGTTTTTGGAAAAGAAGAGAAGAGGAGAGTGGGGGTTGAGGGGAAAGAGAGTGAAA[G/<br>A]GTGGAGGGATTAAATGGGGGCACCATGGAAGGTCCATTTCTCACTCCTTGCTACCTTCC<br>ACGAAGTTTCCTATACATCATGGACTCATTATAAAAGAAGGTGGCTATTTTTATTTTTTATTT<br>TTTTCTTTATTAATTAATATGTCATAATAGTGTATTGTATTGGTTTGGAATGCCTCAT |
| >Gm03_3663436 1 | CAATATGGAGGGCAATAGGAACAAAATATTAAAATGTCACTGGAAAAGAACTGATACTTGA<br>CACTAACTGTCAACAATGCTTTGATCCATACCCGAATCTGTGCCCGAATGATGATCAATGG<br>AATTGTAATCTGGCATGTCAGTTAAGGACCTGGCTGGCATGGATTCTTCATCATCTC[T/C]G<br>TGTTCAGATGCAGAGCTAGCAGCATCTATCTCCTTCCCTGGACACTCATCTTGGACACATT<br>CAGCAACTTCAATGTTGTAATTTTCAAAACCATGACTGCTACTACTTAAGGGTGACAAGTCT<br>TCTTTCTTGACAACATTAAACACAATCCCATTATGGATCCTTTCAGGCTGCAGAAG |
| >Gm03_3670959 0 | GATGATATGTTTGCATCATGTTATCCGTAGCTTCAACTTTCTGTAACTTCTTGTATAGGCAAA<br>GGTTTCAAACCTTCAATCTATCCTTCTCTTGCTTTTGCCAAAATGTTATGGTGAATAGGGAA<br>GGAAAAAGATGGAAAAAAATGTGACTGTTTCATGTACTGATATTGTAAAAGCTG[C/G]TAAA<br>AGTATTCAAATTACAAAATGTAAAAAAAATGTAAAATGACTTCTCTGTTGAGATTTGTTTTCT<br>TATGGCTTTCACCACCGTCCTGAACTTTAAAATGATATTTGAAAAACAACATTAAATTGGCG |

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| | CATTCAACTTCGTAATTGCCTGGCGGCGTTCGGCATTTTAACTTTTTCTTT |
| >Gm03_36808892 | TGAGTCCCAAGGCTTCACTTCATTTCCCACAGTAATGTACCTGAATCTGACATTCCAAAAGT TTCTGACATTGTCTTGCACCCATCTGTTTGCGTTGTCTTGGCTGGAAGCTACATATTGGAG GTCGATGTTAGGAAGATCTAGCAGCAACTCAATGTTGGAATCTCTCAGAGCTTGGA[G/C]GA CTTCATGGTTTCGATCATAGATTCTCATCCTTTGGAAGCCGTACTGTTTAAAAAGGGAAACT ACTTCTTGTGGCGATGGCAGATTGTTGCCAACTCTTCCATAGCATACACCAGATTGTGCAC CTGCACCAGATGGAACAAAATGGTGAATTGATAATACTACTTCTAAGATATCAAG |
| >Gm03_36952394 | AAAAGAAATAAAAAAAAATAAGATCTGTTTTTTTTTTTTTTTGAGAAAGATCATTTTTTATTAT TATTGTTTTGAATTTTGAGAATTATGTAATGATGAGAGGTTGATGTTGTGAAAAAAAAAAATG GAAATCCAGGGAGGAGGCGGTGGTGGAGGTGGCAAGAGTGGAAAGACAATGT[G/C]CACC AACAGCAAGGAGAATTTGTTCATAGTTTTTCTTGTTACACTTTGGTACTCTTCAAACATTGGT GTGATCCTTCTGAACAAGTATCTGCTCTCAAACTATGGATTCAAGTTCCCAATCTTCCTCAC AATGTGCCACATGTCGGCCTGTGCTGTCCTCAGCTATGTCTCCATTGTGTT |
| >Gm03_36959955 | AACGAATTGCAAAAGTTTTGGAACTGTTCTCAAATAAAAATGCTCCTCAAACAGCTGGTTCT GACATAAACAGATATAAACTAGTTATGTTCAGTGCGCAGAGAGGACTGTTGTTGGCATATTT GCCTTCAATCATTTCTTTACTCAACACCCATATATGTTTTGTCATGCCTGGAAAT[G/A]TAGT ATGGTATCAAGTCTTCTCAAAACTACATAGAATTAGAATGCGGTAACGAATGGCAGCATTAA AAGCACACACTACACTAGCAGAAGAAATCAGCAAAGCAAGCCGGGTAATGCCCAAATGTAA AAAAAGTAGCTTGGTTAGGCAATTCATGTCAATGTTCATCTACTTGTTTTTCG |
| >Gm03_36960275 | GTTAGGCAATTCATGTCAATGTTCATCTACTTGTTTTTCGAAAGGTTAGTGTCCTAAAAACC AAAATACGAAACCAAAAAATGTTCATGACCCAAAAACAAAAGAAAGGGAAAACGAAACCAT ACTCTTCTAATATTTTATGCCAGCTCCGGACCAGATGGCAGTGCCTCATAACCATC[T/T]CG GTGCTGCTTACTAGCATCTCTTTCAACTGGGATGCACTTGAGGATAGCAGCTATAGGCATG CTAAATGCTCCGATTACCACACTTAGTAACCAGAATTGCCAGTTTAGAGGCACAGTGCTGG CAAACGTTCCAAGGAATTCAACTATCACCACTTGAAATGCAGCGGTGGCGAAAATT |
| >Gm03_36996777 | CATATATTTGCATTCACTTAACGTAGTCTTGATACCCCAATCCACTAACAATATTTTTTTTAT ATTATTATTATTATCATCATCATCAAAATGCCTGGCTTGTAAATGAAATGGATTTGGACCAAA CTATCTAGTGACGTGCGCAATGAAATCATCCAGTTCCGCGCGAGAAACACCCC[G/T]TTCAT CCTTGGACCTGCGAATAGCATTTTTCAGGTTCATTGCCCTTTGTCTCATCTCATCACCTTCT TTTGTTGCCATCAATCTCCTCACGGCATTCTCAACATCTGATGATGTCACCAACTCGTCCCT GTGGTCCCAGTCCTTCACAACCACCCCAACTCTGAGCACTTCTGTTACCAA |
| >Gm03_36997184 | GCACCCCCATTGTCATGCTCTCCATGCAAGAGTTCCATCCACAGTGACTCATAAACCCACC AGTTGAACTGTGACTTAGAATCTCCAATTGGGGTGCCCAGTCTCTCACAACCAACCCCGTG CCTTTCACTCTCTCTTCAAACCCCTTTGGAAGCTCAGCAGTTCTCACGCCATCCTCA[C/A]G GAACACATCTCCCTTGTCAGCATCCCTCACCACCCATATGAACTTTTGCTTGCTTTTTTCCA ACCCGTTTGCAACCTCCTTGATTTGCTCCTCAGAGAAGCATGTTGTTGTCCCAAACGACAC ATACAAAACTGACCCTGCTTCTTGCTTGTCAAGCCACTCAACACTGAAGTGCCTTG |
| >Gm03_36997185 | CACCCCCATTGTCATGCTCTCCATGCAAGAGTTCCATCCACAGTGACTCATAAACCCACCA GTTGAACTGTGACTTAGAATCTCCAATTGGGGTGCCCAGTCTCTCACAACCAACCCCGTGC CTTTCACTCTCTCTTCAAACCCCTTTGGAAGCTCAGCAGTTCTCACGCCATCCTCAT[T/C]GA ACACATCTCCCTTGTCAGCATCCCTCACCACCCATATGAACTTTTGCTTGCTTTTTTCCAAC CCGTTTGCAACCTCCTTGATTTGCTCCTCAGAGAAGCATGTTGTTGTCCCAAACGACACAT ACAAAACTGACCCTGCTTCTTGCTTGTCAAGCCACTCAACACTGAAGTGCCTTGT |
| >Gm03_37024877 | TTTCTCATTGTTTTTAAAAGGGTGTTCACTTGTCCCTTTTCCATGAATTGCAGTTTATGAGCC ACAAGTGCAAATGGGAATGAAATGAAGAATGGGGTTTAGAGTTAGTCAAGACAAGTGGTGT GGTGTCCTATGTTATGACTGCACACATGTGAAGTGAAGTAGAGACTATTCAGTCC[C/T]CAG CAGCTGTTTCTAGTGTGTGTGTCATTGCATTCCTCATCCTTTTCCTCTTTTTTCACGCCTTAA TTTCTTTCTCTCTTTCTCCCTCTTCCTCTCTGGAATTTGGAGCATCAGCCAGCACTCTATGG ATTCTCTGATTGGTAATTGGCCATCCTACGATCCTCACAACTTCAGTCAGCT |
| >Gm03_37024958 | GAAATGAAGAATGGGGTTTAGAGTTAGTCAAGACAAGTGGTGTGGTGTCCTATGTTATGAC TGCACACATGTGAAGTGAAGTAGAGACTATTCAGTCCACAGCAGCTGTTTCTAGTGTGTGT GTCATTGCATTCCTCATCCTTTTCCTCTTTTTTCACGCCTTAATTTCTTTCTCTCTT[T/C]CTC CCTCTTCCTCTCTGGAATTTGGAGCATCAGCCAGCACTCTATGGATTCTCTGATTGGTAATT GGCCATCCTACGATCCTCACAACTTCAGTCAGCTTCGACCTTCCGATCCTTCTAGTTCTTCT GTAAGTTGCTGTTGTTGTTGTCTATGAAATTGATAATCCTGGTAATAATTACT |
| >Gm03_3702719 | GTTAAGCAACCTTTTTGTAGAAGGGTTCTTCTATAATAACTCTAGTTCATTTTCTCCAATGTT ATTTTTCAAGTTGCTTAACTTTTGTTTTTTTAATTTCGGTAGACTCAATGGTGTTTTCTAATTC |

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| 8 | AAAGTTTGCTAACCTGTTGAAGTTCCAACAGTGATAAGTACTGAAGCCAAAA[G/C]CATCCT<br>CATGAGACATATTTATCAGCATTCTGAGCAGAAGGTTAGTGACTTGATGGTTAAAGAGCAT<br>GTGTTTTGGTGCAGTTAGGTATGCATATGCTTGATGCTCATAACCTTTTGTGTTTTTCAGTT<br>GAATCCAAAAAGAGCTGCATCTGATAACCTTCTTTTACCAGAGCATGGATG |
| >Gm03_3714439 8 | TCCTTAAAAAGTTGACACCAAAACTGAAAAAGCATTTATCTATGTTGCAAATGTTTAGGGCT<br>TTCGTAAAATTGCAACAAGCAGATGGGAGTTTTTCAATGACAGGTTCAAGAAAGGTGAAAG<br>AGAACTTCTACATGAGATTCGGCGAAGAAAAGCTTGGACCAGCAAGCAACAACCAA[G/A]G<br>GCACCAAACCAAGCAACACTCCAAGACTCTGATGAAGATCAAAGGTCCTCATCAATCTCAT<br>CATCTTCTGGTTACACTACCCTTGTGGATGAAAACAAGCGACTCAAGAAGGAGAATGGGGT<br>GTTGAACTCTGAGCTCACAAGTATGAAAAGGAAGTGCAAGGAACTTCTTGATTTGGT |
| >Gm03_3716540 9 | AAGATTCACACGTACCATCTCGAAACAGTTGTTCTGATAACTGTTCCTGAGAAGCTCCATCA<br>CAGACAGGTGTACCAGAGATTAGTGTTTTTACTCTTTCTTCATTGTCAAGCCAGCGCCCAAT<br>TAAGCCTATCATTTCTCGTGTCAAGCTAATCTCCGCAATGGATGTATTTCCTGAT[C/T]TGAC<br>GGAGTCAGTGCCCCCAATGCAAATTTCAAGGTCATTAAGTAAGCTTCTAGGATGAGAAGGG<br>ACATCAAGAAGTCTTTCTTGAATAGCTTGGCAGAGGTTTTGCAAGTCTGCAGAACTCACTTC<br>AGTAGGTTTGACCTGGAAACAGGGAAACAGAGAATTACATATTTGAAGATGCT |
| >Gm03_3730000 9 | GCTCTCATCGATGCCCAAACAAACCCTAGTTGCGAATTTAGAAAGGAACTCCTCGCTGGCG<br>CTCACCATTTCCCTCGCGTGCTGCCACGTGGCGTCGAAGGCGATGAGGACGAGGCCAGA<br>GGAGGGGCGGAGGGAGGAGATGTGGAGGGCGGAGGCGGAGGAGGGGAAGAGGTAGAG<br>GG[C/G]GGGGGGAGAGCGGTCGAGGAGGGGGGAGAGGCCGCGGCGGAGGCGGCGGGC<br>GGTGAGGGAGGAGGCGCGGAGGAGGGACTTGGTGAGGATGGGGGTGGTGGAGAGCTTG<br>TGGCGGGCCTCGTGGGGGTGTTGGATGATGAGGATTTGGGTGGTGGTTTGGATTGGAGG<br>AAGTGGAAGCGC |
| >Gm03_3773076 8 | GCAGGTGTGTGCACCTTGTGTGCTGAGCTTCCATGCTCTGGTGCAATGGAATAAAGTGACA<br>CTTCAAGAGCAGCAACTTCTCTAAGCTCCTCTTCGAGCTTTTCAATTCGTAATTCCATTTCTT<br>CAATTTTTAATTCTGCAGCTGTATCATCCTCATGTTCACCATTTTCTTCAGCATT[C/T]ACTGT<br>TTCATGAATTTCATCTTCACTTCCTACACTCTGAGCACCATTGGAGGATCCATCCACAACAT<br>CAGGTTCCTTGACCTCTTGAACAGGTTTTTCATCTACACCTTCAGAAGATTCTGATGATACA<br>TTTACAGGAACTTTCACAGTCTTGGAATTGGTTGAGGGAGTATTTTTGTTT |
| >Gm03_3773169 4 | CCTTGAAGCTTTTCTCTTCTCAATTTCTTTCATGCTTTCAAATTCCTTCAAATATCAATCAAAT<br>AAAGATGATGTGATAGGGGGAAATGATAGCAGTAACTAACCTTAGCGAGCTCCTTAAGCCT<br>TAGTTCTCAAATCCTAAAGTCTGTTTGTTTGTAATCACTAACAATACCTACTCC[G/T]TAGAAT<br>AGTGTTTTGGCTTCCACCACCAGAGAAGTGCTTGTAAAACCTCTCTATCTTTCCAGAGGCT<br>CAAAACAACAATTGTCTACCTGCAAAAGTATTGGTAAAATAAGTGGCTTGATTCTCAGAGAA<br>TAATAGACAAAAATCGTATAAGGAAACCAATTTTGATTATCGGGATAAGAG |
| >Gm03_3778700 6 | TATCCCTGAAGTTTATGCTAAAAAGCAAGTCATTGTTGCATTCCATATTGCTCTAAACTGCA<br>CTGAACTTGATCCAGAGTTGCGACCTAGAATGAAAACCGTGTCAGAGAACCTTGATCACAT<br>CAAAATACAGTGAGAAACAAGAGATGTCTTAGTGTAGTGGGGTTGATTTTGTAACT[T/G]GC<br>GGGCTAGTAGATGTATCTCTTTCTTCCATTTCTCAATGGAAATTGTTTCCTTTCACCTTTATT<br>TAAAATCAAGGAACGGCCCAAATTGATTGGTGTGGTAAATATTTTCCTTCTTTTTACATCCT<br>GTTTACTTCAAAATACAAATCCTACGGATTCGCATTGAACACCTTGCTTAAAT |
| >Gm03_3782392 2 | GTCTAATTAGTATTATTTCTCTTTCTTAGTTTCCTTCTATATATGCTATCACATAATCAACAAA<br>AAAAAAACACAAACACTTGATAGTACTACTCAAGGTATGGCTTTTCAAGTGTTGTTCATTTG<br>TTTGATCTCAACCATCGTGTTTGCATCCATACTATGGAGAAAACAAAACAAAA[G/A]CAAGAC<br>CCTTCTTCCACCGAGTCCAATGCCCCTACCCATCATTGGACACCTCCACCTTCTTTCTCCAA<br>CACCTCACCAAGATTTTCACAAGCTCTCACTCCGCTATGGACCCATAATACACCTTTTTCTT<br>GGTTCAGTCCCCTGTGTGGTGGCTTCCACAGCAGAAGCCGCCAAAGAGTT |
| >Gm03_3782557 9 | GAGTTTAGGCCAGAGAGGTTTGTTGAAAATGGGAAGAGTCAATTGGATGTTAGGGGACAA<br>CATTATCATCTACTTCCGTTCGGTAGTGGAAGAAGAGCATGTCCTGGTACTTCTTTGGCATT<br>GCAAGTTGTGCATGTGAATTTGGCAGTTCTAATTCAGTGTTTCCAATGGAAGGTTGA[A/G]T<br>GTGACAATGGCAAGGTGAACATGGAAGAAAAGGCTGGCATCACTCTTCCGAGGGCTCACC<br>CCATAATTTGTGTCCCTATTCGAAGACTTAACCCATTCCCTGTTGTGTGATTGTTTTTTATTT<br>TAAACATCATTTTTCCATTCACGTATATGATATGATGTCATGTCAAACATTTATGC |
| >Gm03_3782739 9 | GTCGAGTGATCCATACCCGCTAGGTTTTACACATTCTTTTCCCTGAAACAAACACCACCCCT<br>TTTAGGTCTTCTTCTAATCCTCCCTCTCTCTAACTTTCACACGCAGCGGCTTCTTCTTCCGT<br>TTTCCTGAATCGGTGTGAACAATGGCGACGTACGCTGCGATGAAACCCACCAAGC[T/C]AG<br>GGTTGGAGGAGTCCCAGGAACAGATCCATAAGATAAGGATCACCCTTTCTTCCAAGCACGT |

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| | CAAAAACCTCGAGAAGGGTATGCACCTATTTATTCTACTTTTTGTTTTTAAGGTTGTTGCTAT<br>CCTTAGCCTTATGTTTCTAGTTTTGTGTTACTGTTAGTTTGTGCGGACTTGGTT |
| >Gm03_<br>37828684 | CAACACATGGGATAGATTTGAACTTCGTGTCCACAAGAGAGTGATTGACCTCTACAGTTCC<br>CCAGATGTGGTTAAGCAGATTACCTCTATCACAATCGAACCTGGTGTGGAAGTTGAGGTGA<br>CCATTGCAGATGCTTGATCTATATCCAAATTTTAACTGTTATGGTTTCCTAGTTTTT[G/A]GTC<br>TCCTCTTATTCTGTATTTTATAAGTTTTGATTGCGGGACCGAGTTGAATTGTTTTCTTTTGTT<br>TTACGGTTGTAGACGGTTGATGAATACCTGAGAAATGTCATTTTTATATATTCTAGAATCCTA<br>CATATATTTGTTTTGAAATTATTACGAATCATTTCTAATGGACTCAGCTAA |
| >Gm03_<br>37832228 | CCTTGTGTTCATGAAACTGCCTTTTGTTTTTAGGTACCAACACATGGGACAGATTTGAACTT<br>CGTGTGCACAAGAGGGTGATTGACCTCTACAGTTCCCCAGATGTGGTTAAGCAGATTACCT<br>CTATCACGATTGAACCTGGTGTGGAGGTTGAGGTGACCATTGCAGATGCTTGATCT[C/T]GA<br>TCCAAATTTTAACTGTTATGCTTCCTAGTTTTTTTTCCCTCTCTTTTTGTATTTTGTAAGTTTT<br>GATTGTGGGACTGAGTTGGATTGTTTTCTCTAGTTTTACGGTTGTAGACATTGATGAATACC<br>CGAGAAATGTCATCTTAATATATTCTAGAGTGTTACATATTTTGTTTGAAAT |
| >Gm03_<br>37863804 | GTCACCCTTTCTGTCCTCCAGCCTATACCACTGCGGTGCCAAGGGACTGTCTGGTGGAAC<br>ACGCTTTGGGATCTCATTGAGGTCAAATAAGACACGACCAATGAAGTCATCTTTCACGACA<br>TCCTTGTCCTTCACAGTGACCTCCAGTATGGAAGCCTGAATGCGGTCTTTGGAGAAAG[T/A]<br>AAAAACCTGGTTCCATTCGGGATTAGACTTCTTGTCGAAGTGCCGAGTGGTGCCTTTGTAG<br>TTCCCCAGCTTGACTTCAGTATAAGGGTCACAACTGCCAGTGACATCCTTTGCAGGTAAGT<br>CCTTAGCTTTCACAACCCTCACATAGAGATACTGCATTTGCTCGACTAGGTCATAAGT |
| >Gm03_<br>38055240 | GATATATATTGACTTCCATGTTTATTTTTCTTATTAGTTTTCAGTGTAACATAGTATTTATACA<br>TTAGTTAAAAATTGGTTTGCACAAGGATGGAAGTCAGTATTATTGGTTTGGTCTCAACCTGG<br>CTGGTTCAAGAGGAATCAATCATCTGATGGTAGAATCTCACTCTTTTAGTCAT[A/C]AAGATG<br>ATAAAGGATGGCTGCTTAGACACCCACCTGAGTCCGCCCGACTAGTCAAATCTGTTCTTTC<br>TTGGAATCACGTATTATTCAGAGAGGCCAACCAAGTAGCTGATGCTTTATCCAAACATGGT<br>CTTTCCTTGGTACTACTGATAGCATTGTTTTTTTTTTTATTCAGTTCCGTCT |
| >Gm03_<br>38055290 | ATAGTATTTATACATTAGTTAAAAATTGGTTTGCACAAGGATGGAAGTCAGTATTATTGGTTT<br>GGTCTCAACCTGGCTGGTTCAAGAGGAATCAATCATCTGATGGTAGAATCTCACTCTTTTA<br>GTCATTAAGATGATAAAGGATGGCTGCTTAGACACCCACCTGAGTCCGCCCGACT[G/T]GT<br>CAAATCTGTTCTTTCTTGGAATCACGTATTATTCAGAGAGGCCAACCAAGTAGCTGATGCTT<br>TATCCAAACATGGTCTTTCCTTGGTACTACTGATAGCATTGTTTTTTTTTTTATTCAGTTCCG<br>TCTTTTCTTTCTGTTAAGATATGTGCTGATGTATATTGTCTACGACCTTCCCT |
| >Gm03_<br>38064802 | TTCAAGTTTCTACTTGCTATTGAAATACAAATTACCAAGTTATTTAATGTACTGTATTAACATT<br>TCAAAATTCAACAGCTTCAGGCATATGTAATTTATAGTCATGCAGTTTACCTGTTGGAAGGT<br>GCTGAGGGAGGCCAAGATAGAGCCTCCAATCCAGACACTGTACTTCCTCTCTG[G/T]TGGT<br>GCTACAACCTTAATTTTCATGCTACCCGGTGCCAATGCTGTAATCTCCTTGCTCATCCTATC<br>AGCAATACCCGGGAACATTGTGGAACCACCACTCAAGACTATGTTACCATAGAGATCCTTC<br>CTGATGTCGACATCACACTTCATGATAGAGTTATATGTTGTCTCATGGATACC |
| >Gm03_<br>38065066 | TGTGGAACCACCACTCAAGACTATGTTACCATAGAGATCCTTCCTGATGTCGACATCACAC<br>TTCATGATAGAGTTATATGTTGTCTCATGGATACCAGGAGATTCCATCCCAATCATGGATGG<br>CTGGAAGAGAACTTCAGGGCACCGGAATCGTTCAGCACCGATCGTAATCACCTGCC[A/G]A<br>TCAGGTAGCTCATAGCTCTTCTCAACTGCTGAGCTGGTCTTGGCAGTTTCCAACTCCTGCT<br>CATAATCAAGAGCAATGTAGGCCAGTTTCTCCTTCATGTCCCTCACAATTTCCCGCTCCGC<br>AGATGTGGTGAAAGAGTAACCACGCTCAGTCAAGATTTTCATCAGGGCATCAGTGAG |
| >Gm03_<br>38083417 | GTTTTCTTTTCTCTTCCATCCATGGATTCTCTGAGTTCCATCAACGGCGATTTCGGCTTCGA<br>CGGCGGCACGGATCGCAGATTCGCGTTTTCGCGCCAAGCCTCCTTCCAACAACCTCACAC<br>GCCGATAGACATTCCGGCGCACGGCCACTACGACCACCACCACTACTGGTCCCCGCG[A/G<br>]GACGATAAACCCTCCGCCGCCTCTCTCCAAATATCCTCTCTCTCCTCCTTCGTTTTCTCCG<br>TTTTCCGAAGCGTTAGGTCCGGCCACAGGTACATGAAGAGGCTCTTTCTCATGATCTCGCT<br>CAATGTCGCGTACTCCACCGCCGAATTGCTCACTGGACTCTTCACCGGTCGCGTAGGT |
| >Gm03_<br>38117453 | GTACATGAAATTATAATAACCGTTTTCTGCACTTGTACTTAATTATTGGCCTTACTTGCTATT<br>CTCATGAGCTACAGCAGCAATGTGGTTGCTTGTTTGCCCCAGCAAACTGCTTATGGAACGC<br>GCTTTCACCATGCCAAGCTTCATCCTCTTCTTCGTCGACGTCATTATTATCCCTG[G/T]CTTC<br>TTCTCCTCCTTCTCCCCAAAGGGCTCAGCATCATCAACACACTCAATTTGCTTCTCGAGAGA<br>ACAAAAAGAAGGGGAAGAAGAAGAAGGGTGAGGCACGTGGTGCACGTGCACCTCCTTTGG<br>TGCAGTTGATGCAATAATGGAACGGCTTCTAACACTTGTCATGCTTCTGAGTCT |
| >Gm03_ | TTGTACTTAATTATTGGCCTTACTTGCTATTCTCATGAGCTACAGCAGCAATGTGGTTGCTT |

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| 38117485 | GTTTGCCCCAGCAAACTGCTTATGGAACGCGCTTTCACCATGCCAAGCTTCATCCTCTTCT<br>TCGTCGACGTCATTATTATCCCTGGCTTCTTCTCCTCCTTCTCCCCAAAGGGCTCA[T/A]CAT<br>CATCAACACACTCAATTTGCTTCTCGAGAGAACAAAAAGAAGGGGAAGAAGAAGAAGGGT<br>GAGGCACGTGGTGCACGTGCACCTCCTTTGGTGCAGTTGATGCAATAATGGAACGGCTTC<br>TAACACTTGTCATGCTTCTGAGTCTTCCCTTCCCCAAGTGATGCTCACACAGCGAGT |
| >Gm03_38118175 | TCCCATCTACAACGTATGCAACACCAACACAGTAAACAAAAAAAAAAAAAAAAAAACACCAC<br>CAGCAAGCAAGACACAGTTAGTTAGTTAGTTGCATTACATGCATTGAGTTTTTTGCCATTAC<br>CTTGAGTAGAAGATGAGCTTAACGGTGGCAACAACTCAGCTTGTGTTTTTTCCGA[A/G]TCA<br>AAGGTGCGTCCTTTCCTACAAACAAACCAGACCCAGAAAGACCCACAATTCCATAACATAC<br>ATTTGCACATACTTGTACGTGAATACATAAAATTTACGGCAAAAGGGTGTGAATTAAAGTGA<br>AAGTTGGAGTGTAATATTTCGAAGGAACAAAAACGCAGTGTAGTTGGGGACCAG |
| >Gm03_38119584 | AGGTTTCAGATTTCAAAACAAAAATAAGATAAAGAAGAAAAAGGGTATCAACAAATAAACCA<br>AAAATCTATAGCTACTACATCTACATGACCCTCCAAAGACCAAGAAGAAAAAATAATTATGT<br>TTTTATCAACAACTCTTTCTCTCTCTCTATCTCTCTATCTCTCACACAAACGCAT[G/A]AATAC<br>ATACACTCTTTTCTTTCTCTCTCTCTCTCTATCTCTATAGCACTCCATATATATTGCTTCCAT<br>GAGTTATTATTCTCTCTCTAACTTTTATTTGTTGCACCACAGAAAGGGAGTTGTATGGGTGA<br>GGACGGCACGTGCGATGGAGTTAAGGGAGGAGGAGGTACGTGTGGAACTA |
| >Gm03_38132996 | TGACAATTTACCTATAGAAAAATGGTTGATTTAATTACATAATTACTATGATGCTTATTAAGT<br>AGTGGTTTTGTTTTGAGTGGAAAAGGTGCACATAGTTTTGGTCGTGCGCAGTGTAGATTTTT<br>CAACCAGAGACTGTTCAACTTCAGCGGCACAGGTAGCCCTGATCCCACGCTGAA[C/T]ACA<br>ACCTATTTAGCGACACTTCAGCAAAACTGTCCACAAAACGGAAGCGGCAACACTCTGAACA<br>ACCTCGACCCTTCGTCTCCGGACACCTTCGACAACAACTACTTCCAAAACCTTCTCAGCAA<br>TCAGGGCCTTCTCCAAACAGACCAAGAGCTCTTTTCCACCAACGGCGCCGCCACA |
| >Gm03_38133359 | TCCGTCGTCAACAACTTCGCCGCCAACCAAACCGCGTTCTTCCAAGCCTTTGCTCAGTCCA<br>TGATTAACATGGGTAATATTAGCCCGTTGACTGGAAGCCAGGGTGAAATCAGATCAGATTG<br>TAAAAGGGTCAATGGAAGTTAAAAATGAGAGGCACAAGCTAGCTGTTCTTGATACAG[C/T]A<br>ACTCAGTTACGTTACGTTCCATTCAACATTTACTTAAAACTTTGCGTTGTTATTTGTGTGATC<br>ATGTCAAGAACTCAAGACATGGTAGGATGTTTAAAACGTTATTGATTTGTATGTTTGACTAT<br>ATATATATATATATATATATATATATATATATATATATATATATATATATATAT |
| >Gm03_38150181 | ATATATATACAGTGGGTATGGAACGTGTGACATCAGAGATTCCGGTGAGGGTGGTGGATG<br>ACACCGACGATGGTGCTGCACTTTCATCTCCCAACAGTGCAGTGTCATCTTTTCAGATGGA<br>TTATTGTGTCAGGAACAATAGAAAGTCTAGTGAAGGTGCCAGCGATGACGACGAAAAT[T/C]<br>GCTCATCAAGGAAGAAACTAAGACTCTCCAAACAACAATCAGCTTTCCTCGAAGACAGCTT<br>CAAAGAACACACCACTCTCAATCCCGTAACTTTCACTTTCCTTTTCTCTTTCTCTATTATTTT<br>TTTTTAATCATTGAAAGATAGAATAATATCTATAATTTTATTCAAGTTTAATTATA |
| >Gm03_38170431 | TTAGATATCTTAGTATGGGAAAATAAAACGAAAATGTGAAATCTTTGCAGCTGTGGAAAGAT<br>GGAGAGATGAAAGAAGAAGTCATTGGAGGCCATAAGGCCTGGCTAGTTATTGAGGAAGTC<br>AAAGAAATGATCCAAAAGTATTTATGATTCTTCTATTTTATTTTTCTTGCTCCCTCA[A/C]CCC<br>CCCACCCCACCTCACAAAAAAAAAAAAAGAAGAAAGAAAGAAGTTACAATTGAAGAAACTA<br>ATCTTCCAATGTTTTTACTTTTTTTTCTTTAACATTTTTCATGTTGGCAACCGCATGTAGCTGT<br>GTATCATATATATATTAATGGAACTGTGTACCATAGCTGAAAGAAATTTA |
| >Gm03_38170524 | ATAAGGCCTGGCTAGTTATTGAGGAAGTCAAAGAAATGATCCAAAAGTATTTATGATTCTTC<br>TATTTTATTTTTCTTGCTCCCTCAACCCCCCACCCCACCTCACAAAAAAAAAAAAAGAAGAA<br>AGAAAGAAGTTACAATTGAAGAAACTAATCTTCCAATGTTTTTACTTTTTTTTTCT[A/G]TAACA<br>TTTTTCATGTTGGCAACCGCATGTAGCTGTGTATCATATATATATATTAATGGAACTGTGTAC<br>CATAGCTGAAAGAAATTTAAGTGGAAAAGGAAGATGCTCACTGTTTCTCCCTCCCTCTCAA<br>CCATTAGAGATTTAGAGGGGAAAAAAAAGTGGGGGTTTTTATACCAAATAA |
| >Gm03_38173525 | ACCTCCTTACTAATCCTCGCATTGCTCTGTGTAAAACCCTTCCACCTATTCTCATCCATCAA<br>AATCTCAAACAAATCTTTAGCTCTGCAATTAAACCTCTCCGTCATGCTAATACTCTTCCTTCC<br>CTTCTTCACCTTCTCCTTCTTCTCCTCCTTCTTCGGCGCAGCAGCCGTTGTTTT[A/T]GTCGT<br>CGTCGGAGTCGTCGTTGTCGTTGTCGCCGCCGGAGACGGCGACAACGACGACGGCGCAA<br>CCTTCTTGGGTTCCAATTCGTCCTTAACAGGACCTCCTTTGGCCATGCTCTGCACCCAAAC<br>CCTAACCTTCTCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGCATCCTTAATC |
| >Gm03_38173719 | CGTCGTTGTCGTTGTCGCCGCCGGAGACGGCGACAACGACGACGGCGCAACCTTCTTGG<br>GTTCCAATTCGTCCTTAACAGGACCTCCTTTGGCCATGCTCTGCACCCAAACCCTAACCTT<br>CTCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGCATCCTTAATCCTCTTTCCAACCG[G/<br>A]TCCCTCGTCGTCGACAGTAACCCTAACCTCGGGATCCTCGTCGGCGTTCTCGTCGGAGA |

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| | TGTAGGGGATCTCGACGGTGCCGTCGACCTTGAGAAGAGAGGTTCCCAGGGTGTCTTTGG<br>CCTCTCCCTGCCAATTGAGAGTGAGGCTGATCTCGTAGCCGGGGATGATCTTCCCCTTTCG |
| >Gm03_<br>38173815 | GCTCTGCACCCAAACCCTAACCTTCTCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGCA<br>TCCTTAATCCTCTTTCCAACCGGTCCCTCGTCGTCGACAGTAACCCTAACCTCGGGATCCT<br>CGTCGGCGTTCTCGTCGGAGATGTAGGGGATCTCGACGGTGCCGTCGACCTTGAGAA[C/T]<br>AGAGGTTCCCAGGGTGTCTTTGGCCTCTCCCTGCCAATTGAGAGTGAGGCTGATCTCGTA<br>GCCGGGGATGATCTTCCCCTTTCGGACATTGATGTAGGCCTCGCCGTCGAGGGAGCGAAG<br>CGACGTCGTTTTGAGGAAGAGGTTACCCTCGCCGTCGAGGATAGGGAGGTTAGTGAGGAG |
| >Gm03_<br>38174150 | CGAGGATAGGGAGGTTAGTGAGGAGGCTGGTGAAGAAGGTCTTGACCAGTCGAGGCAGT<br>TGGTCTCGGACCAATGCCAGTTGTGGACATTGGTGCCGTCGGGGCGGTCCTCCACGATCC<br>ACCGCTTGTCGCCCTCACCGTAACGAGCCATTGCAACTGATGCCTCTTTTCTGGGAGAGT[<br>T/C]CCTTAGTGATTAATAATAATTGGATTGGGGTGAGGGTTATGAACTATGATGATTATTATT<br>ATATGTGTTGAGTGTGTGTGGAATGGTCTAGAATGAAAAGGAAGGGTCTAGAATGTTGATG<br>TTGCTTTGGGTACACTTTCTTCACCAACCAACCAAAGCCCGAGAAGGTTCCCTAGGGTT |
| >Gm03_<br>38174157 | AGGGAGGTTAGTGAGGAGGCTGGTGAAGAAGGTCTTGACCAGTCGAGGCAGTTGGTCTC<br>GGACCAATGCCAGTTGTGGACATTGGTGCCGTCGGGGCGGTCCTCCACGATCCACCGCTT<br>GTCGCCCTCACCGTAACGAGCCATTGCAACTGATGCCTCTTTTCTGGGAGAGTTCCTTAG[<br>G/A]GATTAATAATAATTGGATTGGGGTGAGGGTTATGAACTATGATGATTATTATTATATGT<br>GTTGAGTGTGTGTGGAATGGTCTAGAATGAAAAGGAAGGGTCTAGAATGTTGATGTTGCTT<br>TGGGTACACTTTCTTCACCAACCAACCAAAGCCCGAGAAGGTTCCCTAGGGTTTTCTTTT |
| >Gm03_<br>38389449 | TATGCCCAAACACACAAATAAAAAGAGAATAGATATCTCGATTCACGAGAAACTCAAATAAA<br>TGAAAACTATGCAGGAACCATGTTAGAAAACAACTAATTATTTTCAAATGTTAAAGGACTAT<br>ACATCATCCAATGTCAATCCTAATCTTACTATATAAGGCAACCAACTACATACGA[T/C]AACA<br>AGAGCCTTAAATCTAAAACTCCTGACTAGCAGATCCAATCTCGGTCTTCCCCTTGCCAGCG<br>ACCTTCTTGGGCAACAAATTCTGGTGAATGTTAGGCAGAACACCACCGTTGGCAATGGTCA<br>CAGATCCCATCAGCTTGCTCAACTCCTCGTCGTTCCTAACCGCCAGTTGAATGT |
| >Gm03_<br>38389457 | AACACACAAATAAAAAGAGAATAGATATCTCGATTCACGAGAAACTCAAATAAATGAAAACT<br>ATGCAGGAACCATGTTAGAAAACAACTAATTATTTTCAAATGTTAAAGGACTATACATCATC<br>CAATGTCAATCCTAATCTTACTATATAAGGCAACCAACTACATACGAAAACAAGA[A/C]CCTT<br>AAATCTAAAACTCCTGACTAGCAGATCCAATCTCGGTCTTCCCCTTGCCAGCGACCTTCTT<br>GGGCAACAAATTCTGGTGAATGTTAGGCAGAACACCACCGTTGGCAATGGTCACAGATCC<br>CATCAGCTTGCTCAACTCCTCGTCGTTCCTAACCGCCAGTTGAATGTGCCTCGGA |
| >Gm03_<br>38717673 | AAAAATAGAAACAATCAAATTACCTATACATATTTTTTGAATTGGAATTTATTTAATTCCATTT<br>GCAAAATTATTGACCTTGAGATTAGAACATTTGGCATCCTGAAGCAAGAGAGTCGAAGTGA<br>AACCGAATCTATTTGAGTCAAGATCAAACTGCATTAAATTATCCTCCAACTGAT[C/T]CCCTC<br>CGATTACAATGGGAGTTCTCCCGCGGGTCCCACCGTCCACAAAACCCAAACACCACACAT<br>CCACTCCTCCCTTCGCAACCCTCACCATCGAATTCCCGCCAAAGATTCTCCAGAACACGTC<br>CTCGCTGTGCATCACCAGATCAACGGTGGGCACCGCGGGTCCAACTCGTGTCTC |
| >Gm03_<br>38717682 | AACAATCAAATTACCTATACATATTTTTTGAATTGGAATTTATTTAATTCCATTTGCAAAATTA<br>TTGACCTTGAGATTAGAACATTTGGCATCCTGAAGCAAGAGAGTCGAAGTGAAACCGAATC<br>TATTTGAGTCAAGATCAAACTGCATTAAATTATCCTCCAACTGATGCCCTCCGA[G/A]TACAA<br>TGGGAGTTCTCCCGCGGGTCCCACCGTCCACAAAACCCAAACACCACACATCCACTCCTC<br>CCTTCGCAACCCTCACCATCGAATTCCCGCCAAAGATTCTCCAGAACACGTCCTCGCTGTG<br>CATCACCAGATCAACGGTGGGCACCGCGGGTCCAACTCGTGTCTCCGTGAGATC |
| >Gm03_<br>38718672 | GACGGGGTTTTCGGGGAAGAGGGCGCAGAGGGAGGAGTTGTTGGAGCATGCGTTGGAGG<br>GGAAGGAGTTGCAGAGAGGGGTGTTGCAGGGGATGTGGTGGGAGGAGGAGGAGGTGTA<br>GGTGGAGTCGCAGAGGACCCAGCTGAGGGAGGAGCCAAGGTGGAGGTGGAGTTTTGTGG<br>GTT[A/C]GAGTGGGGTTTTCAGGAACACGGAGAGAGTGTAGAGTTGGGTGGTGTCGTCTTT<br>TGAGATTGGGGCTATGAGGGGGATTTGGAAAGTGGGTGTGAGGAAGAGGAAGAGTATCGC<br>CAAGTTGAAGTTGCAGAGAGATGGAAGAGGAGGAGGCATTTTGGTTTGCTTGCTGGAGCA<br>AGGAGA |
| >Gm03_<br>38718710 | TGTTGGAGCATGCGTTGGAGGGGAAGGAGTTGCAGAGAGGGGTGTTGCAGGGGATGTGG<br>TGGGAGGAGGAGGAGGTGTAGGTGGAGTCGCAGAGGACCCAGCTGAGGGAGGAGCCAA<br>GGTGGAGGTGGAGTTTTGTGGGTTGGAGTGGGGTTTTCAGGAACACGGAGAGAGTGTAGA<br>GT[C/T]GGGTGGTGTCGTCTTTTGAGATTGGGGCTATGAGGGGGATTTGGAAAGTGGGTGT<br>GAGGAAGAGGAAGAGTATCGCCAAGTTGAAGTTGCAGAGAGATGGAAGAGGAGGAGGCA<br>TTTTGGTTTGCTTGCTGGAGCAAGGAGATAAACAAAGAAACAGTGGTTGGTGTTGGAGTTA |

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| | AAGTG |
| >Gm03_38719968 | TTGAGCTTTTTCCAATATGATCTTGTGAACTTGATATCTGCAGTTAAAAAAGAAATACCAAAA AGGAATGAAAATAAAAGAAATAATAGGCAAAATTGCTAATATACAACAGCGACCAAAATCTT GTTAGCCAAACAAAACCATATAACCTAAGCTTCTTTCCTATGTGATGCATGAGC[C/C]GAAC AATGCCGTAGCACAAATACAATCTCCTAGAAAAAATTGTACAGCTTTTCTGCTGGCACTGCA TTCAGGAGTCTTTGCTAGCTCTTCAATAAAAATACGATGTCGTTCGACATGCTTAGCTTTTA TTATAACTCACTTGCGCCGCGAAGAGATCATATGCTGGTGAGCCTTGATATC |
| >Gm03_38720115 | ACCTAAGCTTCTTTCCTATGTGATGCATGAGCCGAACAATGCCGTAGCACAAATACAATCTC CTAGAAAAAATTGTACAGCTTTTCTGCTGGCACTGCATTCAGGAGTCTTTGCTAGCTCTTCA ATAAAAATACGATGTCGTTCGACATGCTTAGCTTTTATTATAACTCACTTGCGCC[T/T]CGAA GAGATCATATGCTGGTGAGCCTTGATATCCCTTTGTATTCTGTCTGCATACAAGGGTAGGC GAATGATCTGATTGATCTCATTCAATAAGACCTCTTCTGTGATGTTATCCTTTATGCTTCGCA TTACCTGTGTTAAAAAATTAACAAAAACTGTTCAGAAGGCTTTTCACATGAG |
| >Gm03_38942898 | ACGGAGTTCAATTTACTGAATCTAATTTCTTTTTTTTTTCGCATTTCTATTTTTTCTCCTCATT TCCTTGGGAACCAAACAGTTAGATTAATGACAGTTAGATTGATGAGGTACCTGAATCCTGA CATAGTCGGTACGATTCCAACAGAAGGCGTTCCCTAGCATCTGGTCAACGGTCT[G/G]TGA AACACCGTCGAGCGCAATGTCAATCAGCATTGACGTAGAGCACTCGCCGGCATTGTTCATT CTCTTCGCCGGAGCTCCGTTTCCGATGGAGAGAACAAGGAGATCCTCCACGCCGTTCACC GACGGGAAGTCGCGCTTGTTGTGGAGGACGTGCGTGACCGCCGCCGCGGCCGGATT |
| >Gm03_38942920 | TAATTTCTTTTTTTTTTCGCATTTCTATTTTTTCTCCTCATTTCCTTGGGAACCAAACAGTTAG ATTAATGACAGTTAGATTGATGAGGTACCTGAATCCTGACATAGTCGGTACGATTCCAACA GAAGGCGTTCCCTAGCATCTGGTCAACGGTCTCTGAAACACCGTCGAGCGCAAT[G/G]TCA ATCAGCATTGACGTAGAGCACTCGCCGGCATTGTTCATTCTCTTCGCCGGAGCTCCGTTTC CGATGGAGAGAACAAGGAGATCCTCCACGCCGTTCACCGACGGGAAGTCGCGCTTGTTGT GGAGGACGTGCGTGACCGCCGCCGCGGCCGGATTGTTCATCACTAAGCCGCCGTCG |
| >Gm03_38942927 | TTTTTTTTTTCGCATTTCTATTTTTTCTCCTCATTTCCTTGGGAACCAAACAGTTAGATTAATG ACAGTTAGATTGATGAGGTACCTGAATCCTGACATAGTCGGTACGATTCCAACAGAAGGCG TTCCCTAGCATCTGGTCAACGGTCTCTGAAACACCGTCGAGCGCAATGTCAATC[G/G]GCA TTGACGTAGAGCACTCGCCGGCATTGTTCATTCTCTTCGCCGGAGCTCCGTTTCCGATGGA GAGAACAAGGAGATCCTCCACGCCGTTCACCGACGGGAAGTCGCGCTTGTTGTGGAGGAC GTGCGTGACCGCCGCCGCGGCCGGATTGTTCATCACTAAGCCGCCGTCGACGGCGG |
| >Gm03_39790817 | CGTGTTTGCCATGCAGGGTTTTGGAATTTTGGCAGGTGGTATCTTTGCAATTATAATTTCAG TTGCATTCAAGGAAAGGTTTGATGCTCCACCATATGAGCTTGATCCAGCTGGCTCAACTGT TGCACAAGCAGACTACATTTGGAGGATAATTGTTATGGTGGGAGCACTGCCAGCTG[C/C]G TTAACTTACTACTGGAGGATGAAGATGCCGGAAACTGCCCGTTACACCGCTCTAGTCGCCA AGAACACGAAGCAGGCTGCAGCAGATATGTCTAAGGTTCTGCAGGTTGAGATTCAAGCTG AACCGCAGAAAGAGGAGCAGAAGGCTAACTCATATGGCTTATTTTCAAAGGAGTTCCT |
| >Gm03_39790874 | TTCAGTTGCATTCAAGGAAAGGTTTGATGCTCCACCATATGAGCTTGATCCAGCTGGCTCA ACTGTTGCACAAGCAGACTACATTTGGAGGATAATTGTTATGGTGGGAGCACTGCCAGCTG CGTTAACTTACTACTGGAGGATGAAGATGCCGGAAACTGCCCGTTACACCGCTCTAG[T/T]C GCCAAGAACACGAAGCAGGCTGCAGCAGATATGTCTAAGGTTCTGCAGGTTGAGATTCAA GCTGAACCGCAGAAAGAGGAGCAGAAGGCTAACTCATATGGCTTATTTTCAAAGGAGTTCC TCCGTCGCCATGGACTGCATCTACTTGGTACAGCAAGCACATGGTTCTTGCTTGATAT |
| >Gm03_39963852 | AGAAATAAGCTAAACATGCATCAAATTAAACTATACAAGAAAAAACAGAGCTAGAGAGGGTT CAATTGACCTTGAAAACGATCCATCGAAGAGCTCTAACGCGGCGGAACGGTGAGCATCGG AGACGGGGCCGGGAATCGTGACGGCTCCGCAGATCGAAACAGCGAAAAGTAGCGCCA[T/T ]TAATCCTCCTAGGTTTCGGGCCATTCCTGCACCGATCAATGGAAGAATTTCAACAACAAAG CGAATCGCATTTACAATTTCGATGCGGATCGGCTTATGTTAGGGTTTGAGATCGAGAAGAA GAGAATTAGATCATACGCGGAAGCAGCAAGAAGCTGAGAAGAAATGCAATTGGCAAGC |
| >Gm03_39986148 | TTGTGAAGATGCTGCATGCAATCATTTGTTGAAATTTTTATGGCTGGAGTTTTATTTATACTT TCTACTCGTGTGTTCTTAACTTTTTTATTTTTATCTTGTCTCTTAAGTATCATGATCAAGAGAA GGGACGCAATTCGTCCCGATATGGCAGCAGTTCAAGAAGACCCATAATCTCA[G/G]CGTCA ACCAGGCCAAGTTCCTCTGGTGATCATACTGACAGTCGTACTGGCCGGCTAACCTCAAGTG GAAGCCGACAATCTGCCACACATAGAAATATTCAACCTATGCACGAGACAAAACAACCAAC TTACACACGCTCTGGATCCACCAGAGGCAACCGTGATGATCCTCTGCGGAGTT |
| >Gm03_4002172 | GAGTTTCTTGACACTGTGACAATTGTTGGGGGTCCAAAGTCAAGGAATGAAGTGTGGACAG TGTTTGCCACTGCACATCAGATGACAAGTTGTAGAATGGTTGCCACTGAAGAAGAAGGTGC |

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| 4 | ACTTGATGAGAATGGTGAGAGTTGGGAAGCAAAAGGCTTGTATGTGTGTGATGGCAG[G/A]<br>GTTTTGCCAAGTGCAGTTGGTGTCAACCCCATGGTAACCATTCAGTCTACTTCTTACTGTAT<br>TGCCACTAAGATTGCAGAATCACTTAGCAAACCATGAAAAATCAAGTTGTACTGTTTCACGA<br>AAAGAAAAAATACTATGCATTCTTTACACTGTCATCCCATTAGAAATATTATTTAT |
| >Gm03_4005607 0 | AAACAATTCTTAATTCAACTTCTAGTAGTTTAAAAACTGGCAAGCTTCCTCGGAACTTAACTA<br>ATTTGAATGAGGTTGGGGTTGGCCAAACTTTCAAATCCAAGAGTGTGGTGCATGATAAAGC<br>TGAGGAGCTTGAGTTGTCTTGTGGGAGAGGGAAGCCCAATCCAATGCAATCTTCC[C/T]AG<br>ATGGGACTTGGGGGCCGAGAACAGTGTGGAGTTATGGAAATGGATGTGAATCAAGTAACA<br>CAATCAGCACCTGATAGCCCGCCCTTTTGTGATACCAAAGGTTCAGATAATGACTGCAGTG<br>ATCAAGATAGTGAGCATGTAAGGAAACATACTCTCTTATTTATGGTCTTCTGTTTGT |
| >Gm03_4005979 9 | AAAGCTATTCAATGGCTTAAAGTTTTATTTTTCTGGGGATTATGTGTCAACTTATAAGGAAGA<br>TCTCGAAGAATTAATTGAAGTGGGAGGAGGTACTGTTTTGAGAAGCAAGGAAGAATTGGAA<br>TCACAAAGACATGAATGCAAAGGAGATTCTTCACAGTTGCTGATTGTTTACAACC[T/C]TGAT<br>CCTCCTCAAGGATGCAAATTGGGGGAGGAAGTTTCAATTCTTTGGCAAAGGCTAAACGATG<br>CAGAGGATTTAGCTGCTAACACTTTACAAGTCATTGGTCACACATGGATTCTTGAATCAATT<br>GCTGCATGTAAATTGCAGCCTTTTGTTAACTAAAATGCATTAGGTAGCTGATA |
| >Gm03_4008404 6 | CAACAAAGCATGTTTGATTTTTGGGATTGAAGTTTATTTATGATTCTGATAAAATGGGTTTGG<br>GATCTAGGGCTAAACCTTTGGAGCAGATAAACGTGAGCCCTAAAAAGAAAGTAACTTTTGA<br>TGTCAATGTGAAAACGTACGAGCCCGAGCCTGATGAAGTTGCTGATTACCAACTT[C/T]TGA<br>GAAGTGAAGAGGGTAGAGAGGAAAGTGCTTTTGTTGAAAAGTTAAGCCAAACAAAGTCTTA<br>CTCTGAAGTAAGTTCGGTGACTTCAGCGAGGTCTTACCCTACAAACCATAGGTACCACAGT<br>TGCACGTGTAGTGATGATGAAGATGGAGCAATGGAGTATTGGGATAGTGATGTTA |
| >Gm03_4011792 4 | GGAACAGAAGTGACCCAATGCGAATTGGACCCAACAATCAACGAAAAATGAAAAATTGAAG<br>CAAAGGTATTTTCGCAAATTATAGATAAGACAGAATACGACCGAAATTTCACGGAACCGGT<br>CGCGTCAAAAATCTTACCCGAAAAGGGGTTCACGTGAAGCTCAAGAATTGGATGCAG[G/A]<br>CTAGGGCGGGTGCTTTTAATTCCATCACCGGCAAGGCGAAGAAGGTTGGGTGGGTGCTCG<br>CGAGAGTGAACAGAACGGTGACGAACGAATGGGCTTTGGCTTTGGCTCCTTTTGGTTGGA<br>GGAATAGCAGCTGGCAACCCTACGCGCCAAGGTGGCGCGTGAAGCTCACTATCGGTGATT |
| >Gm03_4013135 0 | CAATGAGTAAAGCAGACTATAAAAAAGAAATTAAGATCACAAGAAAAACCAAGAAAACACCT<br>CTTATAACTATCAATTAATCTCATCAAAACACTTCTCACTGAGAAGTCAAGCAAAAACAAACT<br>ATATGTGCCAAATGCCAATATTGTCTGCAATTCAACCTAAAACAATATCTGAAA[A/T]AACTT<br>CAAGAAGCAGAAACATTACATAAACTAAAAACCCAGCTTAAACAATAGCATTTGCAGCACTT<br>GCAATCCTGGGCCACAGATCAGCACACTCCTTCCCAATAGGACCAGTGATAGCAGAACCT<br>ACAATTAAAAATCTCACCAATCAAACACTAAACATTTCACAGAGGAAAAAAAA |
| >Gm03_4017373 9 | CAGGAATTTAAGAATTTTGGCAGAATTAAGCCTGATGGAATATTCATTAGGGTCCGAAAGG<br>TAGCTCCTCTCTTTGGATTACACTGAATGCTCATATATCCATCTATGCCAAAAAAAAAGAGA<br>AAAAAACTAAAGTAGAAATTGATGTGTACAGGAAATTGGAGTCTGCTATGCATTTG[T/G]AG<br>AATTTGAAGACATTGTTGGTGTTCAAAATGCACTTCAGGTTTATAGTTATTCTATTTATTGTT<br>TTGTTTTTTGTGTTAAACCTAATATTTATTTGATTATCTAATCAATGATTACCTTAATTAACAG<br>AGAAACTAATTGAACATGTCTGAATCATTTATTGCTGATTTGCTTTACTCT |
| >Gm03_4017970 1 | CCACCATTCAGCACACTGAACCCATCTTCACTCTCACTTTCCATTTCTTCATCTTCCTCTTCT<br>TCACTCAAGCCATTGTGCTTGGCAGTAGAGAAAGAAGGAATGGTCTCCAGCACCAAGCTC<br>CTGTGTCTAGCTGAAAACCTCTTGGAAGGGTCTGAAAACTCAAACCTTTCTTCATT[T/A]TTG<br>CAAGAAAAGAAGGCCAAGTCTTGCAAGTTCCCATCAGATTGGACTCTTCTGATCAAGCCTT<br>TGTTTTGCCTTTCAAGCTCACCAATTGAGGGAGAGATTGGAGAAGAACCACATGCAGAGGA<br>CCCAGTTTGGTGGAAAGTAAGTTTGTGATAATGTTGTGGGACAGTGGTTGGTGGA |
| >Gm03_4019584 7 | GGAGACTGTTTCATTCTTCCGGATCATCATCTTGGCTAAACCGAAATCTGCTATCCTTGCCT<br>CAAGATTTGCATCAAGCAATATGTTATTCGACTTGATGTCTCGATGGATAACAGGTGGATGA<br>CAATCATGATGGAGATAAGCAAGTCCTTGTGCAACTCCTAGAGCTATGTTGTACC[C/A]CGA<br>AACCCAGTCTACAAGCAATCTTGTTGCTTGTCTACCATGCAAGGCTTCTCCCAGGTTGCCA<br>TTGTGCATGAATTCATAAACTATCATCACATCAATGTCATTGTGAATAAATCCTAATAGTCTA<br>ACAATGTTCCTATGCCTTAGCCTCCCTAAAACATTCACCTCTCCAACAAGGTC |
| >Gm03_4033853 9 | CATGCTTACTTCATACTAAAGATTATACAGAATACAAAGAGTGGTTAGATGTGAGAGCAATT<br>CACATCAGAAAATTTTAAGATTGAGAGAGAGAGAGAGCATTCATTTTACCTCTAACACTGTA<br>TATATAGGCAATGTTGTTTCTCCATCGATAACAATACTTTTAAGAAGAGAACCAT[A/C]ACGC<br>CGACCATACGCAAGTAGTATGTGCTCAGATGTAGGCGAGAACTATATCAAACAGCAATTCA<br>ATCCTCTAAGAGAAGGCCATTTCAAATTATATTTGACCAATTTAATAAAACTTGGCCCCTAA |

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| | AAGTTGCAACATGAGTTACTTTGGTTGCTGAAAGTGCATGTCTATACAAATCA |
| >Gm03_4034046 5 | TGTTGGCTTCCTTCAGCAGGTCTGGTTTCATCAGTCTCCATACCATCCATTGTGAGATTACT GAGGCCAATTCCCATTCCATTAGAGAAAGCAGTATGAGCAGGATATTCTGCACCAGTTTGA GAGCTAGAGGGCATCTCAGAGAATGTATCCATGGGAGACACGGTAGTCTCATAATG[A/G]G CTGCTGCACTTGGGTCTGCATGTAACTGTACCATGGCAGCAGACTCAATTTGCATGCTACC TGAGCCAACATCATGACTAGCATGCTGTAGTTCTGCTCTTGACTCATCAACAGTATATGCC GGCATAACATAGAAAGGTAATGACACATAAGGTAGTTCGCTGGACAAACTAATATGT |
| >Gm03_4034051 7 | TGAGATTACTGAGGCCAATTCCCATTCCATTAGAGAAAGCAGTATGAGCAGGATATTCTGC ACCAGTTTGAGAGCTAGAGGGCATCTCAGAGAATGTATCCATGGGAGACACGGTAGTCTC ATAATGCGCTGCTGCACTTGGGTCTGCATGTAACTGTACCATGGCAGCAGACTCAATT[T/C] GCATGCTACCTGAGCCAACATCATGACTAGCATGCTGTAGTTCTGCTCTTGACTCATCAAC AGTATATGCCGGCATAACATAGAAAGGTAATGACACATAAGGTAGTTCGCTGGACAAACTA ATATGTTCTGTAGGATGAATATTTGTGACAAAAACAGCAGGCGGAGGATATTGTAAAT |
| >Gm03_4037725 4 | AAGTTGCCGCAAGAGAAAAATACATCCTATTCATATTTCAGAGTTGCATTTCAAACCAAAAT TATAAAATTGAATGATTTTTTTAAATATTAATTTCATGGTGACAATTGCAGGCAGCTGCCAAG TGTAGAGCTTTGGGAGCTCGAACTGGTCTTCCACGTCGGACAGATCCACATGTG[C/T]TATC GTTTTTACACTAGACAGAAACAACTGGTATTTCCCATCAAAGAAGCTCAAAAGCTCTTTCAT CTCTCTGCTTTTGGAGTTATGTTTACTATGTGGCTCTTTGTACATGTCTTGTTGTAAGATGTC CTATAGTTTGTACAGAATCATGAGTAGGGGTGCTCATGATTTGGGTATTTA |
| >Gm03_4053757 8 | TATTTTTATTATTTTTTATTGACGGTGAGTGATGAAAATTGAAACAGTGCAGACGACGATATC ATGGAGCTGCTATGGCACAACGGCCAGGTCGTGGTGCAGAGTCAGAACCAACGTTCTCTG AGAAAACTTCCGCCGGTGACCAACTCCCACGACGCCTCTCCCGCCGGTCCTTCAAT[A/G]A CGAGAGAGATTCGACCGCTGGTGGAGAATTTCAATCAGCATCTCTTCATGCACGAAGGCG AAATGGCTTCGTGGCTTCACTATCCTATCGACGACGACGAGCCTGCGTTGGATCAAAGCTT CGGCGCCGATTTTCTCTATTCTCCGCCGACGACGGCTAACAACAGCAGCTTCATGCAA |
| >Gm03_4062304 6 | CACTTATATGTTTTTCTCCACCCAATTACATCCAATGATCCAAGGAATCTTCTTGCGACTCTT GCTCTATAAGAATACCTATTCTTCTAACACTCGAGCACACCAAACCAAACCTAGCTAGTTTT CATCACCTTCCTATGATTGTTTTTGTTTTAATTTCCTAACTAACTAACACAGCA[G/T]GAAGCA CTGAGTCTTTGGCCATGACGTTCAACGCGAGCACCATCACAACGGCGTCGGAAGGAGCCT GGCAGGGCGATAATCCCCTGAACCACGCTCTTCCTTTGTTGATCGTTCAAACCATCCTCGT AGTCTTCGTGAGCCGCACACTCGCCTTTCTCCTCAAACCCTTTCGTCAACCTA |
| >Gm03_4067014 8 | CCCCTGGAGAAAGTGTGGCGTACAGCGCTAGGGTTTTGAAGCAAAAGATAACAAGGATAT AGACAGCGATAGAGATAGAAAGGAATGAGAAAAAGAAGAGAGAAGCGAACCTTAGAAAGG AAGAGAAGCGTTGGGAATGGCCGCACTTGTTCGAGTGGCGCTGTGGTTACCCTAGAAGA[ G/C]GATGGGAGCACAAGCGAGACTAGAGTTTGTTTCGAGTGCCTATTCTAAAATCTAAATC TGTGGACCTATAATATACTGGGTTGGGCCGATCTCAGTCCACTCTTGGGGTATTGCTATTA GCAATTCAAAGTTTGCTATTGGTAGTGGGAATAGTAGTCCCCTTACTCTTATTTTGTGCGG |
| >Gm03_4068581 8 | AAATCTAGGTCTCGCATCCTTTACATGTAATTTAAAGCTCAAACAAATTCCTCGATGCGGGC TTCTGAGATTTAGACTCTGAATAGCAGGGGAAATCAATCTCTGCTGAACACGGGAAATGAG ATGTTGGCTATAACCTCTGCTCGCAACACTTTGAACTTGAATTTCCGATGAAGAAT[T/C]ATG TCTTATCTAGTACCTGTCAGGCTGTCACAGCAGGGGAAAACATGAGACAAGTCAAACGGGT AATAAAAAATAAAAAATGTGAAAAAGTTTCCTCAGTTGCATTCAGGAAAACTGTAAAAAAAG ATCTCGCAATAAAGAACAGCATAACACTAAGACTAATCACATAACGGAATGTCA |
| >Gm03_4068998 2 | TCAGGAAAAAAACAACAAAAAGTTCTCCAAGCTGGAATGATAAAATTAGCCTATTTTAATTT GAATAAAAAGACATAAAACAAGAAAATAATTTCAACCTATTTAAAAAAGCAACATAAAATAAT ATAAAAAACCATTACACTCTTTCTAATAGAAAGGGTGAGAATATAAAATTATAC[A/G]AGATT AAAACATTTGATATTGGATTGTGCATGTGCTATAAGAGGCAGGTAAATTTGATATTGCAGGG ATGACATATTTGAAATTAAGCACAGTTTGTAGAACATGCATGAGCTAAGAGGCAGCTAAAGT AAAATGTTTTTTTTTATTCCTACATAATATTGATAATGCAGCCTTTTTTCA |
| >Gm03_4076079 1 | TCTATTGTATGTCAAAATAAAGACCTGGCTTCCTTCTCTACTGAAAGTTACACAGTGTGGAT TTCCCATGCTGACACAGGTCACATGCCAGATAACTCCATCTACAACTAGTTCTGATTTAACA ACAGCATTATCCTTATTTGCATGTAATTTAGTAGGCACATCTGAGGCTTTAAGAA[G/C]TGGT TCCCCCATATCAACTCTGACCTGAAACAGATAGCATTATTGTCTATCAAGCTGAAGAAAGAG AACCAATACCAGATAAGAAACAAAAACAAAATCCCTTCCTGACGTTAAACCAATTAAGGCAC CTTAAAAGCAACATGGGTCGATGTCTTTAAACAATATCACATATTAATAAGT |
| >Gm03_4078529 | GGCCTTACCCATGGATTCTCTTCCCAAATTGCGCCACCCTTCTCCATTTCCCACTCCCTTAT CCTCTTCCCTCTCCTTCCGCTCTTTACCGCCACCCCATTTTCCTTCGTCGTCGTTTAGGTTA |

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| 1 | CCCTCCATCAGAGCCTCCTCCTCACCCTCCCAAAACGACCCCGCTTTTCGCACCC[G/A]AA<br>GAAACAAGCCCTCCCTCCCCCCCCTCCTCCAAACCCTAACCTCCTTCCTCTCCCCCCTCCT<br>CGAAACCACCTGCATCGTCATCGCCGCCGCCGCCTTCTTCTTCATGCGCTTCCACCACAC<br>GCCCGCCGTCATCGCCGCTCCGCTCACTTCCCCCGCCGCGGAAACCGACACCGCCTT |
| >Gm03_40785299 | CCATGGATTCTCTTCCCAAATTGCGCCACCCTTCTCCATTTCCCACTCCCTTATCCTCTTCC<br>CTCTCCTTCCGCTCTTTACCGCCACCCCATTTTCCTTCGTCGTCGTTTAGGTTACCCTCCAT<br>CAGAGCCTCCTCCTCACCCTCCCAAAACGACCCCGCTTTTCGCACCCCAAGAAAC[A/G]AG<br>CCCTCCCTCCCCCCCCTCCTCCAAACCCTAACCTCCTTCCTCTCCCCCCTCCTCGAAACCA<br>CCTGCATCGTCATCGCCGCCGCCGCCTTCTTCTTCATGCGCTTCCACCACACGCCCGCCG<br>TCATCGCCGCTCCGCTCACTTCCCCCGCCGCGGAAACCGACACCGCCTTCACCCAGG |
| >Gm03_40870653 | GAACCCTTCGTTCTGCGTCCTGGACTCCCACTACATCCTCCTCCTCTTCACCTTCCGCGAC<br>CTCTCCCCTCCCCCCGTTGCCTCCTTCAACCGCTCCTACCCCGTCACCTCCCCCAACGAAT<br>ACTCCCTCTTCTTCGCCAACTGCGCCCCCGAAACCTCCGTCACCATGTCCGTCCACA[A/G]<br>CGAAGCCTACAATCTCGACGCTGACGGTTCACGCGACTACCTCTCCGCCGGCCAAACCCT<br>CCTCCCTTCCCTCTACTTTCTCTTCTTTTTAACCTACCTCTCCTTCTTCTCCTTCTGGCTCTA<br>CATCTGCTACACCAACAAACTCTCCGTTCACCGCATTCACCTCTTAATGTCTCTCCT |
| >Gm03_40885382 | ACTGGGCAAGCACATTCTACGATGCATGAGGCGTTCCAACAGTTGAAAACCTTTCCCTTTC<br>ACACTTTTCCTTTTTCTCTCACTTTCAGTTCTCACGAGAAACCTACGCCCCTTCCGCTCATC<br>CTAGAGCTCCCACACCCAACAAACCCCGATTTTTCTCAACACACACTCACACAATC[T/C]GT<br>TTTTCACTCCCTCGATTTCGCGATCTCGCAGTCGATTCTCCCTTTCCTTTTAATTATAAACGC<br>CGTCGTTTGCTTCCCCGCGAAGTAGTTAGGGTTTCTTGTTGGCACAATTATTGGATCGCTG<br>CATCGATAATTGACGGGAGAAACAATTTTTTTTTAATCGAGAAATTGTTTTCTC |
| >Gm03_40886333 | TGTGGAATTAATCAGTTCCACTTTGCGATTGGAGCAGGGTTCTTTGACTGGAGAGAGTGAA<br>GCTGTGAATAAGACTAACAAGCGTGTGGATGAGGATGCTGATATTCAGGGGAAGAGGTGT<br>ATGGTTTTCGCAGGGACCACTGTTGTTAATGGGAATAGCATATGCTTGGTCACTCAGA[A/G]<br>TGGCATGGATACCGAAATCGGGAAGGTGCATATGCAGATACACGTAGCCTCGCAGAGCGA<br>GGAGGATACCCCATTGAAGAAGAAACTCAATGAGTTTGGAGAGAAGCTGACCTTGATAATT<br>GGACTGATATGTATTTTGGTTTGGCTCATCAATGTTAAGTACTTCCTTTCTTGGGAGTA |
| >Gm03_40889026 | CTCCTAGGGAGGAAGTATACCAAGCAATTGAAGACTGCAGAGATGCTGGAATTCGTGTTAT<br>GGTTATTACTGGAGACAACAAGAACACCGCTGAAGCTATATGCCGTGAAATAGGTGTATTT<br>TCTCCAGATGAAGACATTAGTTCTAAAAGTTTAACAGGTAGAGATTTTATGGAACTG[A/C]AT<br>GATAAAAAGGCATATCTGAGACAGCATGGCGGGCTTTTGTTTTCAAGGGCTGAACCTAGGC<br>ACAAGCAAGAAATTGTGAGGCTGCTCAAAGAGGAAGGGGAAGTGGTGGCCATGACTGGG<br>GATGGTGTTAATGATGCTCCTGCCTTGAAGCTTGCAGACATTGGTATTGCAATGGGCA |
| >Gm03_40951123 | ACAAACACGTTTTGAGACGCCGTTTCCACGACCTTGCGATTCAGCGCAGCATTGAAGGCG<br>ATTTTTTACTAGCATGGCAGCAATAATGTTGACGACTATGAATATTCCTCTGCACACTTCGG<br>TTTGGGTTAATTCCCGGCGGAAGAGTTGGTGCTGCTACGCCTCACTTTCGCAGCCAG[C/T]<br>TAGGAAGGAGATCCGTCTCGGTTTGCCCAGCAAAGGTCGCATGTCCGCTGACACCCTCGA<br>ACTTCTCAAGGTCATTCCAATTTCGACTCGATTCGCCACTGTTATCTTCTACATTCTACACTA<br>CTAACTAACTCTGCATTCTTTCTTCTGTGTGAAGAATTGTCAATTGTCAGTGAAGCA |
| >Gm03_41007691 | CAAAAAAAGAAGCCCACTTAGAAGGACTCTTTAAATATATTTATATTCAACGTATAAAACCTT<br>TGATGCTGTTCTGCCAAACCCCAAACCCTAGTTTTGTCAGTAGCACACTTCACCCATGGCA<br>GTAGCAGCAGCTCGCCCTATCGTCTCCGTCCAAACCCTAGAGGGCGATGCAACCC[G/C]TA<br>CCGTTCCTCTTCCCGACGTCATGAAAGCCTCCATTCGGCCTGACATCGTCAATTTCGTCCA<br>CTCCAACATTTCTCGCAACAGCCGCCAACCCTACGCCGTCAGCAAGCGCGCCGGCCACCA<br>AACCTCCGCCGAGTCCTGGGGCACCGGCCGCGCCGTCTCGCGTATCCCGCGAGTCCC |
| >Gm03_41007937 | CAACATTTCTCGCAACAGCCGCCAACCCTACGCCGTCAGCAAGCGCGCCGGCCACCAAAC<br>CTCCGCCGAGTCCTGGGGCACCGGCCGCGCCGTCTCGCGTATCCCGCGAGTCCCCGGCG<br>GTGGTACCCACCGCGCCGGCCAGGGCACCTTCGGAAACATGTGCCGTGGCGGCCGCATG<br>T[T/C]TGCTCCCACCAAGATCTGGCGCCGCTGGCACCGCAAGATCAACGTTCAACAGAAGC<br>GCCACGCCGTCGTCTCCGCCATCGCCGCCTCCGCAATCCCCTCGCTCGTCCAGGCTCGC<br>GGCCACCGCATCGAGTCCGTCCCGGAACTCCCCCTCGTCGTCAGCGACACTGTCGAAAGC<br>GTCGA |
| >Gm03_41008189 | CGCCATCGCCGCCTCCGCAATCCCCTCGCTCGTCCAGGCTCGCGGCCACCGCATCGAGT<br>CCGTCCCGGAACTCCCCCTCGTCGTCAGCGACACTGTCGAAAGCGTCGAGAAATCCAAAG<br>AAGCCGTCAAAATTCTCCAGAAAATCGGCGCATTCACAGACGCGGAGAAAGCTAAACTCA[<br>A/G]CCACGGAATTCGTCCCGGGAAGGGAAAAATGAGGAACCGCAGGTATATCTCTGGCAA |

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| | GGGTCCTCTTATAGTGTACGGAACAGAAGGTGCTAAGGCCATTAAAGCCTTCAGGAACATT CCCGGTGTAGAGGTGGCAAACGTTGATAGGCTCAACCTTCTGAAGCTGGCACCCGGTGGC CA |
| >Gm03_ 41008255 | GGAACTCCCCCTCGTCGTCAGCGACACTGTCGAAAGCGTCGAGAAATCCAAAGAAGCCGT CAAAATTCTCCAGAAAATCGGCGCATTCACAGACGCGGAGAAAGCTAAACTCAGCCACGG AATTCGTCCCGGGAAGGGAAAAATGAGGAACCGCAGGTATATCTCTGGCAAGGGTCCTC[T /C]TATAGTGTACGGAACAGAAGGTGCTAAGGCCATTAAAGCCTTCAGGAACATTCCCGGTG TAGAGGTGGCAAACGTTGATAGGCTCAACCTTCTGAAGCTGGCACCCGGTGGCCACCTTG GAAGGTTCATTATTTGGACCAAGTCCGCATTTGAGAAATTGGACTCTATCTATGGATCCTT |
| >Gm03_ 41170229 | TCAGAGATTCCTGTGTTCACATAGCCAATCCTCTCACCAAGTGCAAGTAGTTCCTGGTCAA ACCAGTCATCAAAATAATTAAAAAATCTGAGTGCATAATATTAATTGCAACGCTAGAAACAG TAATAAATTAATAATCACCTCATAACTCATGTTATCTACGTCCATCCTCATGTCTC[T/C]GTGC TGATCTAGCATGTTCCTGGAACCATACACTGATGCACGCTCAACAACCATGAAACCCTGAA AGCCAACAAAAAATACAAAGAAAAAAAGTAAATGAGTCTCAGCCAGTGGTAGTAATGCCAG AAAGAACAATTTTGATGTTCTTAATGAACAGCGCAACTAGTTCAAAAGAATATA |
| >Gm03_ 41184564 | TTTAACAAATGGATCAAGCTGTCCACTGATCTGTAACCGTGGTGGACTCGACAAGACAACA ACAATATTCAGAACATTAACAAGACCACACCACACCATGAGCGTCATCGACATTCTCACCA GAGTTGATTCCATTTGCAAAAAGTACGACAAATACGACGTCCAAAGCCAAAGGGACT[T/C]T AATCTCTCCTCCGACGATGCATTCGCCAAACTCTACGCCTCCGTCGACGCCGACATTGAGG CCTTACTTCAGGTCACACTTCCCTTCACTTTTTTTTTCAAATTCATTACTAAATGAGGAAATT TGTGCCCTAATTCGTGAGAATTATCGATTTTTTTTATTCATCTCCCAAACATGTG |
| >Gm03_ 41223681 | TATCAGCTATTTGTGAGGCTTTGAGGAGTTTGATGAAGGTTGTGAATTGTCCTGCTTTCTCA AGCACTTGGGTGATGTTGGTGGGTCCCGCTGGTGCCGGTGCTACTTGGGCTGAAATTGTT TGGATGAAGATGTTGAGGAAGAGGAAAGGGAGGAAATTGAATAGCTTTGTCATTGGT[C/T]T TCCTTGTGAGTGAGGAAATTAAGAAGAGAAGACTAAGATGTTTGTTACAAGTGGAAGGAAG AGATGTGGTGTCGTAATATATATTAAGAAGAGGGTGCATGGAAATTTGATTGTTTAAAAGGT TAGGTGAAAGGTTGCAATTAGTATAAGGTAGCAAGAGGCCCTCATGCAATCAATTT |
| >Gm03_ 41228284 | TAGGCCTTGGTTTGAGTTGTTCAGCTGTGAATTGATTCTATCAGCTATTTGTGAAGCTTTGA GGAGTTTAATGAAGGTTGTGAATTGTCCTGCTTTCTCTAGAACTTGGGTGATGTTGGTGGG GCCCGCTGGTGCTGCTGGTGTTTGGGCTGAAATTGTTTGGATGAAAAGGAAAAGGA[T/C]A AAATGGATTAGCTTTGCCATTTGTGTGAGTGAGGAAGCTAAGAAGACTAAGATTTTTGTCAC AAGTGGAAGAAGGGGATGTGGTGTTGTGTATTTATATTATATGGTGTTAAGGTTTGAGGGT GAGTGGAAATTAGATTGGTATAAAAAGTTAGGTGAAAGGTTGCAATTTGTATAAGG |
| >Gm03_ 41228321 | CTATCAGCTATTTGTGAAGCTTTGAGGAGTTTAATGAAGGTTGTGAATTGTCCTGCTTTCTC TAGAACTTGGGTGATGTTGGTGGGGCCCGCTGGTGCTGCTGGTGTTTGGGCTGAAATTGT TTGGATGAAAAGGAAAAGGAGAAAATGGATTAGCTTTGCCATTTGTGTGAGTGAGGA[G/A] GCTAAGAAGACTAAGATTTTTGTCACAAGTGGAAGAAGGGGATGTGGTGTTGTGTATTTAT ATTATATGGTGTTAAGGTTTGAGGGTGAGTGGAAATTAGATTGGTATAAAAAGTTAGGTGAA AGGTTGCAATTTGTATAAGGTGGCAAGAGGCCCTCATGCAATCAATTTTTCTTTCTA |
| >Gm03_ 41230797 | ATTGGCAGTTCCCATTCCCATTGCCATCGCCAGCGCATATATCAAATCGAACAGCCGCAAA CCCTTCCTCTGAACTCTGATCCGCACTGGCACTGAAGCCATTGCTGTACCTTCCAAACCCT AGCGTAGCCACGCGCTGAATTGCGATACGATGATCGTGCGCACATGAGGCGGCACGG[T/C ]CCGGCACGATGATGAACACAGCCAACGGCACGATGATCTCACCGTCGTCTTCGTCGGGAA CGGCGGCGCAGTCGCCGGGACTGAAGACCTATTTCAAAACCCCCGAGGGAAGATATAAGC TTCAATACGAGAAGACTCACCCTTCCGGTCTTCTTCATTACGCCCATGGCAAAACCGTTA |
| >Gm03_ 41231547 | TGACAAAATGGAATTGTCTTAGCATATGAGTGAATTGTTGGTTTGATTGAATGAGCAGGTAA CCCTGGCACATCTCAAGGACAAGCCTGCGCCTTCTACCCCAACCGCTTCGTCATCGTCAA GTTTCAGTGCCAGCAGTGGGGTACGGTCGGCGGCAGCTCGATTGCTGGGAGGAAGCA[T/A ]TGGTAGCCGGGCACTTAGTTTTGTTGGAGGCAATGGTGGCAGCAAGAGTAATGGAGGAAA TACTAGGATTAGTTCCATTGGTGCTTCGAGTACAAGTAGTGCAATGGCGAATCCGAATTTT GACGGGAAAGGAACATACTTGATATTCAATGTCGGGGATGCAATTTTCATTAGTGATTT |
| >Gm03_ 41233252 | GTATACGAAAAGGCAAGTCTCAATCATCAAAAGAGAAACTTACTTTATGGTTCATTTATGAA TATCTTTCTTATGATGAGTTAAGTAGATATTTACCTCTTCTTTCCTATTTCAGAACAAAGATG GTGCTGGTGATTCTTCTTTCCCAGTTGTAAAGGATCAAACTCAATTTTCGGTTG[A/G]CCATG CACGTTACAGTAAGGTATTGAATTTGATGGCCTTTTGATTTCTTGACAACTTATTGATATGCA ACTTCTATTTTACCTTTTTCCTCTCTTTTGGCCTATCTATTTTGATTTTACTGTAGTTAAATTT AGTTTTTATCACTTATTAGTTATGGTTGCTAAGTTTTTGTAGAATTTT |

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| >Gm03_41234338 | GATGATTTAGTTCAAGTTTGGAGCATGGAAGATCGCAAGGTTGTGGCATGGGGCGAGGGACATAACTCATGGGTAAGTTGCCTGACAATTTTTAGTTGTGTGCTTGTAGCAAACTTTGCTACCGTAGGGTTAATGTAGTGTTTGTATCAAATGCCATGATCAGGTCAGTGGAGTTGCTT[G/A]TGATTCATATTGGACATCACCAAATTCAAATGACAATGGAGAGACTGTTACATATCGTTTTGGTTCTGTTGGTCAGGTGCTCAGAAAAATGTTTCATTATAATTTTTACTTTTTCTTTGTGTAGCTTTTCATTCTAAGTAAAACTCATTGGTATACCTAACATGGATCTGTGGTAGCTTT |
| >Gm03_41255346 | GCCGGCAGGGAAGGACAATTGTATCTCGGGGCTCTGACAAGCAAATAACACATTTTCCTTGGTCATTCTCCGTTGAATTTCTAATACCATATATCTCCTGCAGCTCATACCTCATTCCATTCACCCACAAGATCTGCTTGACAACTTTCACCCGGAACTCTCCTTTCTCCTTCTCAAAC[C/A]TCGTTTGCGTAATCTGAGAGTTTGTGTTACTAGATGTTGGAGATCTATCTGACTCATCATGATTACCAGGGGATGCGTCTGCCTTTACTGCTAGAGGGTAGACATCCTTTTCCACCCACCTTTCCAATAACTCAGACTCTTCAAACACTGAAAAATCAATACCAGTTCCAGCTGCCTGTC |
| >Gm03_41275788 | GAAAAGGAAATCGTGAGAAACGGGAGCGAAAACGAGTTGATTATAGTAAGAAAGCGCGTGAAATCCGAAAAGGGCTGCATTGGCGTGAAAATGGTAGATCTAAAAGTAAAGGAGAAAACCGAAATAAAGAGATTGGAAGGTACCGTAGCAATCGGGTCTGTGTTAGATTCAGAGAAAAC[T/C]AGACACAGTGTCTCTAACGAAAACTGGAGGACTGCTTCGCTGATTTGCTTTTCGTCTTCGCCCAATCAAATCAACACAACCCACCTATTTCTTTAATAATAAATAAATCACACATATATAATTTAATTTTACTCACAAACCATATTCTTTCGCAAAGTGTGGACATAAATAATAATGACA |
| >Gm03_41977697 | TAACACAGTTCTCCTTTCTCTGAATTTTTCGTTAGAGAATGGGGAAGAGTAGCGGAAGAGACCGAAGACGAAGAAGATCACATGACTCTGAATCCGACTCACCTTCCGATTCCGACTCCGACAGACGCCACCGTAGCAATAGTCGCCGGTCGCGGCGGGACTCCGATGGCGACAGGAAG[C/G]AGAAGTCCTCGAAGTCTGAATCCGAGTCGCCTTCCGATTCCGACTCCGACATACGCCACCGTAGTAGCAGCCGCCGGTCGTGGCGGGACTCCGACGGCGATAGGAAGAAGTCCTCGAGGAGCATCACAGAAGAGGAAATTACAAAGTACATGGCCAGAAAGGCCCAATCGAAGGTCTCAC |
| >Gm03_42179109 | GGCAGAGCCACTGCAACAGGAAGCAGAGTTCGCCGCTACTCCGCGACCCTACCCTATCAATTTTCGTACTTCTTTTCGTAATTGCAGCGAAGAATGGCGAAGAGGAAGGAGCGGATTCAGAACCCGGAGCCATTCGATCCGTACGGCGCCGACCCCGCGAAGACGAAGAAGCGTTCGAA[T/C]CCGCCGAAGCGGCACCAGCAGGAAGAGCAGTTCATTGCTCCCAAACTCAGCTCCAAGATCATGAAGCAGGCGCTGATCCAGCAGAAGGAGGAAGAGAAGGAGGAAACGCACGAGAACAACGCCGCCGCGAATTTATTCGAAGAGGTTCCGAACTTCGAGGAAGACGGCGGTGACGACATC |
| >Gm03_42224125 | GTTGGAACCGGACGGGAATCTGAAGGGTTATTACTGGGACGGTTCCAGGTGGATGCTTAACTACCAGGCGATTACTGAAGCCTGCGAGCTCCCCCGCTCCTGCGGTTCGTACGGTTTGTGCACGCCGGGTGGGTCAGGATGCTCCTGTTTAGATAACCGAACCCGGTTCGAACCGGGTG[T/C]GTGTTTTAATGATGCTTCTTCTGGAGACGCAGACTTGTGTAGTAGTGAAGGAATTGGTGGAAAAAGTAGTTACTGGGTGCTAAGAAGAACCGGAGTGGAGGCAGCGCATAAGGAGCTACTAAGGCACGTAACGACGTCGTCTCTGGCGGAGTGTGAGGGATTGTGCCAGAACAACTGTAG |
| >Gm03_42334769 | TAAAAGAACACAAATAGGAAAATACAAACAAGACAAACACAACACACAGGTCCATGCCAGAGCATGGTGCACACTCAGACACAAGTTTAGAGAAGTTCCATACTGAGGTGAAGTACTCAGCAGTGTGATTGAGCCGACTGAAGCCACCGAACAAGGCATCATCTGAATCCAAGACAATC[A/G]GGAAAAAGGAAATGCATAAACCCATTATTAAACATTCTCAAACTTAGGAAAAGAAAAAAAAAGGAAATAATATTGGTATTGGTCATAATGTTGGAAGCATTAGCTTCCAGTGATGGTATCGGTAGTACTATCGTATCAAAAGTACACAGTAGGACCAGACCATCCATAGATGGAATTGGA |
| >Gm03_44581620 | CGTAAACAAGAAAGGTAAAGGTAAGTCTGTAGATAGTAGGGGGAGTAACTCCAGAGAGAAATTAGCAAATAACTTTTTAAGCACTGTACATCAGCTACAGGCAAATTATAAATCTTCAGAAGAGAAAGCGGAGGTGCTATCAAGGGGTGATTACCGCAGTGAAGGAGGCAAATTAAAAA[A/T]TGAGCAGCGGATTGATATGAATTCTGGTAGTCAACCTACGATGAAGCTTGGTGGGAAGACTGAAACATCAAACGACAGTTTATCTAATCAAAGTAAAGACGATGGGGGTGGTGGGAACAAGCAACGCAAGAAAACTTCTAAGTTCCTGAGAGTACGCCTTGGTGATGGTTCTGTTTCAGC |
| >Gm03_44779159 | CTTGCTTTTTGTTCGATTGAGACTATATGTTATAGCGTATTAGTATAATATAAGCCTTTTTGTCTTCCCACTATGATTGGTGGTTGTATCATTTTGTTGTAGATTTTAGGTTGTTTTTTTCCCACTAGGAGTGTTGAGGTTTCAGGTGGAAGTTCGTTTTTTGAGTGATGGTCACTTTT[C/G]TTCTGTACAGTAGTAGTGTTTGAATAAAATGAAGAGGCCGTGATTGGAGAAAGTAAAGTAGTGTGTGCATAGCTAGTGAAAATATGTAGTACCAATGTGAACGCCCAAAGAAAAAACACTGGTGAAATTTTTTGGATTCATTTTAGCATAAGTTTGGTTATGATTTTATTCATCGCAAATT |

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| >Gm03_45034077 | AAACATTTTTATATGTTAACACCATTTTCTTTTCCCGGATGTCACACAGATTACATTTGGTGC<br>CAAGAAGCAAAATGTTGCAAAGAAGCAAAATGTTCCGATCTCCTCTATATTTAGTAACGATA<br>GCGATGAAGACTAATGATGGAACATTACTCGTGAAGTGACATATCAGCGTGATG[G/A]TGAA<br>TCTCCTGTGTGGTTTGGTGTGGTTTGGTTTGTATTAGCTGTTTTATTTGATAATTGTTGCCAT<br>CCTCGGTTCAAGAGGAAGAAAACATTTGGGATTATATGATAGTTTGGAGTTTGGTAGACCA<br>AAAATGTTACCTGCTTATCTGTGAGGTAATGTTATGTTTGTAAGGATTTTAT |
| >Gm03_45105650 | GAAGCAAACATGGGGCGACTTTGAAGATAGAAGGATGCGACCATGGACTCCATTATCGGT<br>GGTGAAGAGCGGGAGCAAGCGGATAAGAAAGAGAGCATCGTGAACGTGGTTCAGTCTTGG<br>CTCGTGTGATCTATAATGGCTTAGCCTTGACGGCGGCGGTGTGTTTTGCCGTCCTCCTC[G/<br>T]ACTTTTCTATCTTCGTGACGGTGGCGACGATTCGGTTTAATTAGTTTTTTTTTTAAAGTAG<br>GGTTAAAATGGCCTTCTCATATATAATTTTATTTTGATATATTTTTTTAACCCAACTACTTCAT<br>TTTAATATATTTTTTAACCCAATTACTATCTTATAATATGAACCGTCCAATTATT |
| >Gm03_45392239 | CACTATTAATTGATTTTTCAAGGGTAACTACTGAGTATTTTTGTGCTCTTGTGAATTTTCTGT<br>AGGATGGAGGACCTAATTCCCATTTTATTCCAATACGTTCGAAGTCGTGAGAAGCCTGGGG<br>GAGATGTGTTATTTGTAGCTCACAATGCTCGCTGTTTTGATGTGCCCTTCATCAT[T/C]AGTG<br>AGTTACGGCGTTATTCCATAAAGATTCCTCCTAATTGGTTGTTTTTGGACACCCTTCCTTTA<br>GCGCGGGAACTAATGAAGTCCGGAGGTCTCTTTCTCTCTCCTCTTCTCTTAACACATATGC<br>ATGCACGCACACGCACACACACACAAATACTTATTGTTTCCATGTGAAAACCT |
| >Gm03_45503654 | CTAAATACACAAATAGAAAATGTTTTGAAAAGGAGCAGGGAGTGCAACATTATAAAGAGTG<br>GCCACTCAATAGTCAATAAGGGGAATCAAAAAATCAAATGCTAGTTTTTTGTAATACACGTC<br>AATGTAAAACATGGGAGCCACGATATGTTATCAGAACAGAAATATCATAAAAACTG[T/C]CA<br>CCGACGCCTAGAGCAAACAGTTTAATTTCAGAAGTGAACAATTGTAAAAAAAAAATAGAACA<br>AAGTTATATTATATTTCTTAAACTCTAAATCCTCTGCTGTTCCTCCTTCCTCTAGCCCTCTCG<br>AACTTTCTTCCCTTTGCTCGTACATAGGGCTTGGTATGGCTGTGTGGCACACC |
| >Gm04_44751336 | CCGTTAAAACTCAACTGCAACTGCAGCAGCGAAACCAGCAAAACGTGTTCTTCCATGCTCA<br>ACGTAGCAGAACGCGAAGAAGCACTACCAGATTCCACTCATCCAAACGCTGCTTTAGTTCT<br>TCCGCCTTTCCAAATGCGTCCGCGTTTCGCCGCGGCGCCGTGTGCCAGGTCGCCAGC[A/C<br>]TCGACTTCGAATCCGCCGCCAAAGCCGGAGAGGATCGTCTCTCTAAGGTATCATCGCTAC<br>TACTCACTATTTCTCGTGTTTTTCCCAAATTAGCCCTCGTTCGTAGCTACTAGTACAAGCTC<br>GTTTGGTTCGGTTTTGGTTTTCAGGTGCCGGTGCGTAATATAAGGAACTTCTGCATCA |
| >Gm04_44761104 | CTCTTTTAATTCGCTTATTTTACTTTTCATCTTCACTACATTTAACTGGTTTAAAATTGTCGGC<br>GATTGAGCTCATCCAGCATCAACAACTCAACTTTCACCCACACTTATCTACCATTCTTCAAA<br>TTCGAAGCCTCCTAGCTCGGAACTGGAGTGTTCGGTTACAACACTGCTATCGT[T/A]AAGGC<br>AATGCCCCAGCGGACTGGTTAGCTAAGCATGGTGCTTCTAACGCACTTTTTCTCTCCGTCC<br>AGCCTCACCTTGCTGCTTTTGGCTGATTCCTCTGGAGCTTCCATTGCTAGAACCTAGTTCTG<br>TTTTCTGCTTGCTGTCTTGTATTTCTTACATGATAAAAAAAAAAACTCGTTT |
| >Gm04_44772822 | TTGACCTAGGCTTGTTCGGCAAGGAGTCCTCGGGGTAGCGCGGGATTCCGTCGTATAACT<br>CATCGTCCGCAGTGGTAGAAGCCTTCCCGTTGGTTCTAGAAGGTTCTCGAAGATTCCTCAC<br>CATCCTTTGGGGCGCGGCGGTGAAAACAGCGGAGTCGTCGTCGTAGCTGCCAGGCTTA[C/<br>G]TCTGATGAGCAGAATCGGCGGCGTTGACAAACACTCGGTCATCCTCGGCGGAGCGCGA<br>GCAGAGACCTCCCATCACTTGCGACAACCACACCAAGAATTCAATCTTCGAATACGAAGCC<br>CCTGCCATCTAGTAGTAGTAGTAGCAGTAAGAGTTACCGCTCTAAGATCGCAAGGCTCGTT |
| >Gm04_44787477 | AAAAGATAGAACCCCACAAAAAATATGTATAGTTATATATAGAGAGAGAGAGAGGGCCTTG<br>GTTGGTGGTGCAAGGCATAAAGAGGAGAATTGGTGGGGATAGGCGAAGGAGGTGGCGAC<br>TGAGTAGTGAATAGGGTTTTTGATTGATTGATAGCAATAATTGGTGTTAGCGAAGCTTG[G/A<br>]GAATTGAGATTTATGGGTCGCAATCGCAGTCGCAGTCGCAGTGTGTCACGCTCTCCTTCC<br>AATTCCCGCAGAAGAAGGTACTCTCCATCCCCTGTTTCTCATCGCCACTCGAGAACTTCCA<br>GGCGCCGCTCTCCTTCCCACAAGCGCCGTCGAAGGCACAGAACCTCTTCCTCCCCCTCT |
| >Gm04_44787569 | GGTGGGGATAGGCGAAGGAGGTGGCGACTGAGTAGTGAATAGGGTTTTTGATTGATTGAT<br>AGCAATAATTGGTGTTAGCGAAGCTTGAGAATTGAGATTTATGGGTCGCAATCGCAGTCGC<br>AGTCGCAGTGTGTCACGCTCTCCTTCCAATTCCCGCAGAAGAAGGTACTCTCCATCCC[A/C]<br>TGTTTCTCATCGCCACTCGAGAACTTCCAGGCGCCGCTCTCCTTCCCACAAGCGCCGTCG<br>AAGGCACAGAACCTCTTCCTCCCCCTCTCTTTCACGCAGCCCCACTCCCAAACCCAAGAAA<br>GATCAAAACAAAAGGTAACCAATCATAACCATTCTTTTATTTGCCTGGATTTTATCTTA |
| >Gm04_45033967 | ATGTCATACAAAAAGTGTGCAGAAATAACAATAGAATAGTTAGTGGATTGTTCAAAGATAGA<br>CATTGACTGTAAGATGAAAAGTTGAAACTTTCCAAATGAAAGAAAGAAAGGGAAGAAGAGT<br>ATTATTCAAATACCTGATCTTGGGGGAACTTCACTTGCACAGGAGAGCAGTGATCA[A/C]GA |

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| | TTGTCACCGACTCCAACCTGTCCAAACTACAATTGAAGGCAAAATAGGTAAGAATTTTCCAA<br>ACACATGTCAATAGTAAAAGACTTGTGATTGTACAGAAAGAGAATAAAGTCTTAATACCAAT<br>TTTTTTTTTATATGAAGTAGAATATATTTAGTTCTCTGCACACATGAATGTGCA |
| >Gm04_<br>4503478<br>7 | AAATGCCAATGCATCCAAATAATACAAGAAATTGCTAGCTAGACACCAACTCAGCATAAAAT<br>TAAAGGACTACCTGAGAGATTAACTTATCACTCAAGGCTTGAAGCTTCTGAGGCACAAGAG<br>AATCCTCAAAATTTCCATGTCCTAGCTGGCCATATTTGCTCCACCCGTATGTGTAT[A/C]TGC<br>CACCAGAAGATGAAACAGAAATTGTATGCCGCCAACCACAAGCAACCATGACCATCTTGTC<br>ACACTGCAACATTAAACAAGCAAGAATTAGGCAAGGGGAGGAGGGAGAGCAAAAATCAAA<br>AGTTCTCCATCCATTACTATGCATGTACACCAATCACACATGAATTTTAACAACAT |
| >Gm04_<br>4506150<br>9 | AGAAAGAGCTGTTCAACTTTGTGATGAGTCACTTGGATGCAGCCACACAAGATGAAGAAGG<br>GTCTGCACCTGTTTTGTTTCACCCATTTGGGAGCTACCTTTTTGTTTCATCAGATGGAGCAG<br>TGTGTGTGGATTGTGCAACTTCTGTTATAAAGATGTTGCATTTGATGTTTGCATCA[A/T]TTT<br>CCCCAGCTTGTAGTATTGAGGACCATCTAAAGTATGGAGACTATGTTAAGAATTTGTCATTA<br>CAATTCTTGAACCAGAACAATTCCGTGCAGGGGAATATTCCTGATTCAAGCTATGAAGCAG<br>GACTTGAATTGTCGGTTCAATCTTCAGGTTTGGGTAACCAGGTAAATGCACTAT |
| >Gm04_<br>4509041<br>9 | CCAACCCCCCTCCCCCAATAAAAATAGGAAAAGAAATTAGCTAACCACTAATGACTGATGA<br>TGTAAACAGTTATGGAGGAACCGTTGGCAGCTTGAAGAACATTGCGACTAGAAACATGTCA<br>ATTGCTTTGCAAACCAAGGCATACAATCTGACTGTTTTTGCCTGTATTCTTACAAAT[G/A]CT<br>GTTGCAAAATTGGTGCAGTTACTGGAGTTTGATTGGTTTTACTATTTGCAGAGACATTGAAT<br>TTGTACAGATTTGCATGTATAATAATACATCAGTTTTAACAAGAATTTGTACTGAGAAAATCA<br>CACGCCCCGTCCCTCTTGCAACTACTTTCACATTATTTACGTTAGATACTTCC |
| >Gm04_<br>4538076<br>4 | AAAAATAGATTGCACACCTCAATTCTGTTGTTTTCTTTCACAGCCAATGTGTCATCATCTTCA<br>AAGAAACAATCAAGCAAAGATAGAATGTCATTGTCAACTTGATTATTTGGAGCTGAAGGATG<br>TGCTGAGCAAGAGGTCATCAATTCTGGTACACAAGATACAGAGCCAACTTGATT[G/C]CTTG<br>GTGCTGAAGGATGGTCTGAGAATGAGGGCATCAATTCTGATGCAGATGACACAGAGCCAA<br>CTTGACAGTTTGGTGCTGAAGGATGTGCCGAGCAAGATGGCATGAATTCTGAAACACGTGA<br>AACAGAGCCAACTTGACTGTTTGGTGCTGAAGGATGTGCCGAGCAAGAGGGCATG |
| >Gm04_<br>4538079<br>0 | GTTGTTTTCTTTCACAGCCAATGTGTCATCATCTTCAAAGAAACAATCAAGCAAAGATAGAA<br>TGTCATTGTCAACTTGATTATTTGGAGCTGAAGGATGTGCTGAGCAAGAGGTCATCAATTCT<br>GGTACACAAGATACAGAGCCAACTTGATTGCTTGGTGCTGAAGGATGGTCTGAGA[G/A]TG<br>AGGGCATCAATTCTGATGCAGATGACACAGAGCCAACTTGACAGTTTGGTGCTGAAGGATG<br>TGCCGAGCAAGATGGCATGAATTCTGAAACACGTGAAACAGAGCCAACTTGACTGTTTGGT<br>GCTGAAGGATGTGCCGAGCAAGAGGGCATGAATTCTGAAACACATGAAACAGAGCC |
| >Gm04_<br>4538083<br>4 | AATCAAGCAAAGATAGAATGTCATTGTCAACTTGATTATTTGGAGCTGAAGGATGTGCTGA<br>GCAAGAGGTCATCAATTCTGGTACACAAGATACAGAGCCAACTTGATTGCTTGGTGCTGAA<br>GGATGGTCTGAGAATGAGGGCATCAATTCTGATGCAGATGACACAGAGCCAACTTGA[T/C]<br>AGTTTGGTGCTGAAGGATGTGCCGAGCAAGATGGCATGAATTCTGAAACACGTGAAACAG<br>AGCCAACTTGACTGTTTGGTGCTGAAGGATGTGCCGAGCAAGAGGGCATGAATTCTGAAA<br>CACATGAAACAGAGCCAACTTGATTGTTTGATGGCAAATGATGTGGTTCCGAGCAAGAGG |
| >Gm04_<br>4538088<br>5 | GATGTGCTGAGCAAGAGGTCATCAATTCTGGTACACAAGATACAGAGCCAACTTGATTGCT<br>TGGTGCTGAAGGATGGTCTGAGAATGAGGGCATCAATTCTGATGCAGATGACACAGAGCC<br>AACTTGACAGTTTGGTGCTGAAGGATGTGCCGAGCAAGATGGCATGAATTCTGAAACA[C/G<br>]GTGAAACAGAGCCAACTTGACTGTTTGGTGCTGAAGGATGTGCCGAGCAAGAGGGCATGA<br>ATTCTGAAACACATGAAACAGAGCCAACTTGATTGTTTGATGGCAAATGATGTGGTTCCGA<br>GCAAGAGGGAATCAATTCTGATACACATGATACAGTGCCAACTGGATTGCTAGGTGCTG |
| >Gm04_<br>4538116<br>2 | TGATGGCAAATGATGTGGTTCCGAGCAAGAGGGAATCAATTCTGATACACATGATACAGTG<br>CCAACTGGATTGCTAGGTGCTGAAGGATGTGTCGAGCAAGATGGCATCAATTCTGATACAC<br>ATGATACAGAGGTCAATCCAGCACATCCACTTGTAGAGGGATGGATGTAATTAGCAA[G/C]T<br>GAAATATGGCTTTCACTAGGTTGTATAGGAACAGGTGCACAAACAGCAGCAACAGGGGCA<br>GATTGTACAGAATCAATTTCCTCATCTGTTTCCCACTCTTTCTCCTCATATGGTTTACCATAT<br>TGTGCACCATTCCTAGGACCAGGACCCTCCTTTTGGTACACCCTACAAATCACATA |
| >Gm04_<br>4538512<br>8 | CTAACTCAGCATTTGGGAGGCTAATGCAATTTCTCCAGGTAGCAGAGCTCCATTCACAAGA<br>AACAGGGATGGAAAAATCAAAAAGACTCGGCTCAAGTAAATTTAGCCTCAGACTGTTGAAG<br>TACTTTTGCGAGTCAGAATCTTCCTCACACTACTCCAGGAGAATAGACAATGCACAC[G/C]G<br>CCACCTTTTAATTCTTACTTCTCACAAAAACTCCAAAGCCATAACACACAGTGAACCAACCA<br>TCTTCAAATGACTTGTAAAGGCAAAATACTAATTGATGAACAATCACCGTGCAAGCTTAGTC<br>AAAAGGGAACAAGCAAACGATCACCATTGACAAACTATTTCACAATATCCCATTC |

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| >Gm04_45580521 | CCAGCTAGCATGAAGAGCAAGATTTGCCAATAGGAGCGAGGCAATCTCACCTTATCCACAC GCCCACCACAACCTTAAATTACATCCATCATCCATAGCAACAAGCCAAAGAAGAGAAAATA ATAATATGAATAACAACCCACAAAACTTGGGTCTTGCAAATTAAGTTCATTTTCCTC[G/A]CT TTCACTCTCGTAGACATCACAAACCTTCCCTCCATTCATCCCACGCATGGCTGCCATGAAC TCTAGCGTATTGGCCTGTAGCTATGCCATATCAGGTGCAGCGTGTTCGGAGCTCAATGGGA AGGTCACTTCCGTGGCCTATGTTGCATGCTCTGGCTACAAGTTGCCATTGATCAAA |
| >Gm04_45580672 | GGTCTTGCAAATTAAGTTCATTTTCCTCCCTTTCACTCTCGTAGACATCACAAACCTTCCCT CCATTCATCCCACGCATGGCTGCCATGAACTCTAGCGTATTGGCCTGTAGCTATGCCATAT CAGGTGCAGCGTGTTCGGAGCTCAATGGGAAGGTCACTTCCGTGGCCTATGTTGCA[T/T]G CTCTGGCTACAAGTTGCCATTGATCAAAGCTGAGGCCAGAGTTCCTAAAGCCAAAGAATCT GAAGGAGGAAGGAGAGGTGCCCTTGTTCTCTTGGCAGCTACCCTTTTCACCTCTGCAGCTT CCAATTCTTCTGCCAATGCTGGGATCATTGAAGATTACCTTGAGAGGAGCAAGGCCA |
| >Gm04_45581542 | TGTACTTAATTTTGCCTTCATAATGTAGATAAGTTTATGTGCTATAGGAATTGAATGACAAGA AGAGGTTAGCTACTACTGGAGCAAACTTTGCAAGAGCATACACCGTGGAATTCGGTAGTTG CAAGTTCCCTGAGAACTTCACTGGTTGCCAAGATCTTGCCAAACAAAAGGTCTAG[G/T]TCC ACCTCTGATATTTCACTTGCTTTCCCAAATCCTAACTCTTGCACTTGCCTTTTTCTAATTCAG TAATTCTCATGCTGTTGTTCTTTTTTCTTCTTTTTTTTTTCTCCTTTTCGTTTCTGGGTTTTTAT CTACGCAGAAAGTGCCATTCCTTAGTGACGACTTGGAGCTTGAATGTGA |
| >Gm04_45581810 | TTTTCTTCTTTTTTTTTTCTCCTTTTCGTTTCTGGGTTTTTATCTACGCAGAAAGTGCCATTCC TTAGTGACGACTTGGAGCTTGAATGTGAAGGAAAGGACAAATACAAGTGCGGTTCTAATGT TTTCTGGAAATGGTGAAAGGAGGCAACATTTTATGCCTAACTGCGAACTTTTCG[C/A]CTTG CAATGTACCTAACTGCTTGAATATATATCATATTTTTCTGCATTGATTTATTATTATATTGTTG CTGTTGGATTTTATTTGTTGAAAAAAATGTGTGCATTAGGCGGCTATTTACTCTAGATTCGTT GAAATTACATTTTGCGATATGTTTTGATTTCCCAAATTCATGTTAGCTT |
| >Gm04_45594453 | AGGTAATAAAAAAAGTTAAACAGGAAACTTTTTCGCTTTTTCAATAATTGGTTGGAGACAAG AACTATTTTTTGTGGAAGACATCTTAGACATGTATAGTTTAGTTTATTTTCAATTTTTCTTAAC AGGAAACAATCATTAGTAATTACTCTCATAAAATTGGTGATGCCAGCAACCAA[T/C]ATTTTG GTGTTGACTGCGATGAGCAGTAGTACATTAGGCCTCATTGAGGTTTATGACAATCATGGCC GTGCTTACCCTTGCAAAGGAAATGAACATGAGAAAATCTTAATCTTATAGATCCCTAGAAAA CCTTAATAAACTCATCTACAAAATCATAGAAATGGACTCATAACTTCGTAA |
| >Gm04_45597626 | CACACCAAATGGGCGGAAAAAAAAACAAATTTTCATGCAGTGAACAAATGGGTACATGAAA AAATAAAACTTTTTTAAAGGTATTGCGAAAAAAAAAAAAACCGAGAGAGAGAGTACCCGAA GAAGAGCATCTGACGGTAAAGACGGAAACTTTGGCGGCAGCATGTGGCGTATTGGAA[C/T] TGAAGCGGTTGTTGGTGAGGTCATTGAGAGACAGAGCGAAGGACAAAGCTTTTGTCTCCAT TGATGCCTCACAGAAGAAGCAGCGTTACAGATATGTCTGAGGGAACCACTCCAGTCGCAG TACCTAGGTTTCCGCCACCTAGGTTTTTATTTTTGCAATTTCGCTTCATGGGGCTCTTT |
| >Gm05_38251772 | TGCTAATATTTCTTTGATACCCTCTGTAACCCCAGATCTGTCTGGTAAGGTTGATTTGTGGC CAAATGAAGATGGTAAACTTGAGCAGCTTCACTCAGATGAAGCATATGAGATGATTCAAAA CCACTTGAGTCTCATTCTCGGTAACAAAGCTGGAGATTTAACATCAGTAGCTGAAA[A/C]CA GCAAATTCAGGGTAGGGCAGGTCTATGCAGCATCAGTGATGTATGGTTATTTTCTTAAGCG AGTTGACCAAAGGTTCCAGTTGGAGAAGACAATGAAAGTTCTTCCAAATGCAACAGAAGAA GAGAATGGTGTTCATCGAAATACGATGGACAATGCAAGACCCAGTATTGAACAGGA |
| >Gm05_38252318 | CACAGAGGCATTGTTTGGAAGACCTGAAATTGTTGTAACACCTGAGGGGGCAGTCTCTAAG GATGAAAACATCAAAATTAGCTTTGGTGGTTTAAAGAAGCTTGTTTTAGAGGCTGTGACTTT TGGTTCTTTTCTCTGGGATGTTGAGAGCTACGTGGACTCAAGGTACCATTTTGTGT[T/A]TAA CTGAGTAAAGCTTTGTATGTCTATCTTCTTTAGAGACCACAGGTGGGAGCCTTGTGCATTCA GTTGTCCTTTTGATTTCTGTTTGCTCCCATACATCACAAGATACAGTTCATACTTCATAGTGT GTTGGTACTGACTGATGAGTTTAAAGTCCAAATATTGTTTCACTAATTCCTA |
| >Gm05_38278658 | AGGTTCCCTCCCTTCAGATCTGGCCTCCTGCGTCAACCTCCGCAACCTCTACATTCAGCGC AACTTGCTCACCGGCCAAATTCCACCCTTTTTGTTTCATTTGCCGGACCTCGTTCGCTTGAA CATGGGCTTCAACAACTTCTCCGGCCCCTTTCCGTCCGCCTTCAACAACCTTACCC[C/G]TT TGAAAACTTTGTTTCTCGAAAACAACCAGCTCTCCGGCCCAATCCCCGACTTGAACAAACT CACCCTCGACCAGTTCAACGTCTCCGACAACCTCCTCAACGGCTCTGTCCCTCTTAAGCTT CAGACATTCCCTCAGGACTCTTTTCTAGGTAACTCCCTCTGTGGCCGACCACTCTC |
| >Gm05_38279366 | GGAAGGGAACGCGAAGAAGTTGGTGTTTTTTGGGAATGCGGCGAGGGCGTTTGATTTGGA AGATTTGCTCAGGGCTTCGGCGGAGGTTTTGGGGAAAGGGACTTTCGGGACGGCGTACAA GGCGGTGTTGGAGGCGGGGCCGGTGGTGGCCGTGAAGAGGTTGAAGGATGTGACAATTT[ |

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| | G/A]CGAGAAGGAATTTAAGGAGAAGATTGAGGCGGTGGGAGCGATGGATCACGAGAGTTT<br>GGTGCCTCTCAGGGCTTACTATTTCAGCAGGGATGAGAAGCTCCTTGTCTATGATTATATG<br>CCCATGGGAAGCTTGTCTGCCCTTTTACATGGTCCGTCTTCTTTCTCTTTTTTGTGCTTGCT |
| >Gm05_3828012 4 | CACGAGGGCCTAATGTTTCTCATGGAAATATCAAGTCATCAAACATCCTCTTAACCAAATCA<br>TATGATGCCAGAGTGTCTGACTTTGGCCTTGCACACCTTGTTGGCCCCTCCTCTACCCCTA<br>ACCGTGTGGCCGGCTACCGTGCGCCGGAGGTGACTGATCCTCGCAAGGTGTCTCAG[A/C]<br>TGGCAGATGTGTACAGCTTTGGTGTGTTGCTCTTGGAACTTCTGACTGGGAAGGCACCTAC<br>CCATGCTCTCCTGAATGAGGAAGGAGTGGACCTCCCCAGATGGGTTCAATCCGTGGTTAG<br>AGAAGAGTGGACTTCTGAGGTCTTTGATCTTGAGCTCCTTAGGTATCAAAATGTAGAAG |
| >Gm05_3828038 7 | GGAGTGGACCTCCCCAGATGGGTTCAATCCGTGGTTAGAGAAGAGTGGACTTCTGAGGTC<br>TTTGATCTTGAGCTCCTTAGGTATCAAAATGTAGAAGAGGAGATGGTTCAGTTGTTGCAACT<br>TGCAGTTGATTGTGCAGCACAATACCCTGACAAGCGCCCTTCAATGTCTGAAGTGGT[A/C]A<br>GGAGCATACAAGAGTTGCGAAGGTCTAGCTTGAAAGAGGACCAGGACCAAATCCAACATG<br>ACAATGATATACTATTATAGAAGAACATGTATCTTCTCCCTCGACTTTGCTTTGTCAGAGTC<br>GGAGCCCATATTTTACTTGCTAAATCCTGTGCGTATGTTGCTTGCATTCTGTTGGCT |
| >Gm05_3838682 2 | GGAAGCCCACAGGCCTGCAAGCCCACCGTCTATTCCAAGATCTTCAAGACCGCATGCCCC<br>AAGGCCTACTCCTATGCCTATGATGACCCCACCAGCATTGCTACTTGCACCAAAGCTAACT<br>ATTTCCTCACCTTCTGCCCCCATCGCCCCTGATCCATAATTCATCTTGTATGCTTGTT[A/C]T<br>ACTTTATTAGACCATTGGATCTATCATCTATGTATCCCTAAATGGTATTATTATATTAATGGT<br>GCTTTGATCAATATTACTACCTTTTTTCGTCGAGGTGCGCTAATGTCCTCAGTTTATGCTATA<br>GTCGATGGCCAACCACACTCTATTTCTATCCCCCACGGTCTAATTGATGTGTA |
| >Gm05_3843163 3 | ATGCTCTGTGATATATATCATCATGCTCTACTTGATGAGTTCTCAACAGCCCGTGATCTGCT<br>TCTTATGAGCCATTTGCAAGATAGTGTTCAGCATATGGACATTTCAACGCAGATACTTTTTA<br>ACAGGGCCATGTCACAGTTAGGTTTATGTGCTTTTCGGGTTGGACTGATTTCTGA[A/T]GCA<br>CATGGCTGTTTGTCTGAACTCTACTCTGGTGGAAGGGTGAAGGAGTTGCTGGCACAAGGC<br>GTGTCACAAAGTCGTTATCACGAGAAGACTCCAGAACAGGTACTGATCCCCCCTCCCCCTC<br>TTCATTTTCCGAATGATTGATATGGTGGAAGTTTATTAGGTGCTGGTCTTAGACTC |
| >Gm05_3843264 7 | CATCAATCTAGAGCTCCTGGAGGCAGTACATCTTGTTTCTGCTATGCTGCTGGAAGTTCCC<br>AATATGGCAGCCAATGTTCATGATGCCAAACGGAAGGTCATTAGTAAGACTTTCCGTCGCC<br>TGCTTGAGGTAAGTGAGAAACAAACATTTACTGGTCCACCGGAAAATGTCAGAGATC[G/A]T<br>GTTATGGCTGCCACAAGGGTTCTTAACAAGGGAGACTTCCAGAAGGCTTTTGACATTATTG<br>TGTCTCTTGATGTGTGGAAATTTGTGAGAAATCGAGACACCGTACTTGAAATGCTGAAGGA<br>CAAAATCAAGGAGGAGGCATTGAGGACATACCTCTTTACCTTCTCTTCATCTTATGA |
| >Gm05_3843274 6 | CATTAGTAAGACTTTCCGTCGCCTGCTTGAGGTAAGTGAGAAACAAACATTTACTGGTCCA<br>CCGGAAAATGTCAGAGATCATGTTATGGCTGCCACAAGGGTTCTTAACAAGGGAGACTTCC<br>AGAAGGCTTTTGACATTATTGTGTCTCTTGATGTGTGGAAATTTGTGAGAAATCGAG[G/C]C<br>ACCGTACTTGAAATGCTGAAGGACAAAATCAAGGAGGAGGCATTGAGGACATACCTCTTTA<br>CCTTCTCTTCATCTTATGAATCGTTGAGCCTGGATCAACTCACAAAATTTTTTGATCTCTCTG<br>TTTGTCGCACTCATAGCATTGTCAGTAGGATGATGATCAATGAGGAGCTTCATGC |
| >Gm05_3843556 3 | TGTCAATTCTTCCCAATTTTTCATGCTCAATGTATATTGCCTTTAACATTGGGATGCAGCTTA<br>GTGTCAAGACTATTAGTTAACAAAGTGTCTTTCTGAATGTTTTATAGTTGATCTAATTTCTGA<br>ATATGATTATCAGAATTTTGCAGTGGGGAGAGGACCGACGCTTTGATGAAATG[G/A]GCAGT<br>AATTTGGGTAGACTGGCCATATTTTGGATATTTCAGGTTTCTTAGATTTTAATCATTTTTTTTA<br>AGATTTAGCATGCTGATCTTGGTTTTTTCTGGATTTATTCTCTTTTGATGTCTTGTAGTAGAG<br>GATTTACTTCAATTTTTTGCAGGCTGTCTGGGTGTGGGCTGTGAGTTT |
| >Gm05_3843760 9 | ACAATAACGAATTGTTTAGGATGGTCAAATTTTGGTGTGTGACTATTACAATATCGAATTGTT<br>TAGGATGGTCAAATTGTTTAGGATGGTCAAATTTTGTTGTCTCTGGAAATGCTTTAAAACTC<br>CTTATTGCATTCCTTAATTGTAGGTGAAATGGTATTAAATTTTTTAGTATCTGC[T/C]CAAGGT<br>GCAGTGCAAACAGTGGGAAAATCAGTGATGCTCTGAAAATTGGCTAGCACTTGGTTCTTTG<br>AATTTGTTTGGTTCCTGTCTTACGTCAGACTGAAGTTGCAGCTGGTATCATCATCCGCCATG<br>GTTAGGGATGTGGCTTTGTAATGCTATTGCAGCTTTCCTTCTAGATTTAAT |
| >Gm05_3843762 4 | TTAGGATGGTCAAATTTTGGTGTGTGACTATTACAATATCGAATTGTTTAGGATGGTCAAAT<br>TGTTTAGGATGGTCAAATTTTGTTGTCTCTGGAAATGCTTTAAAACTCCTTATTGCATTCCTT<br>AATTGTAGGTGAAATGGTATTAAATTTTTTAGTATCTGCTCAAGGTGCAGTGCA[C/G]ACAGT<br>GGGAAAATCAGTGATGCTCTGAAAATTGGCTAGCACTTGGTTCTTTGAATTTGTTTGGTTCC<br>TGTCTTACGTCAGACTGAAGTTGCAGCTGGTATCATCATCCGCCATGGTTAGGGATGTGGC<br>TTTGTAATGCTATTGCAGCTTTCCTTCTAGATTTAATCTTTCTAATTTGCTT |

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| >Gm05_38437721 | TGCTTTAAAACTCCTTATTGCATTCCTTAATTGTAGGTGAAATGGTATTAAATTTTTTAGTATCTGCTCAAGGTGCAGTGCAAACAGTGGGAAAATCAGTGATGCTCTGAAAATTGGCTAGCACTTGGTTCTTTGAATTTGTTTGGTTCCTGTCTTACGTCAGACTGAAGTTGCAGCTG[G/C]TATCATCATCCGCCATGGTTAGGGATGTGGCTTTGTAATGCTATTGCAGCTTTCCTTCTAGATTTAATCTTTCTAATTTGCTTGTTCTCTCTTAGATATGTATAAATTTACGTACTATATATGTTGTGTGCAAGTACTATGGCTTGTGCAGGTAACTAATGGATCAATCATGTTTTTCAT |
| >Gm05_38588041 | CCCCACCGTCGTCTCCGACGCCCTCCACAAGGCTGCCGTGAAGGCCGTCGACGTTCTCACCGCCATGGCCGTCCCCGTCGAGCTCTCTGACCGCGACTCCCTCGTGAAGTCCGCTAGCACATCCCTCAACAGCAAGGTCGTCAGCCAGTACTCCACGCTCCTGGCTCCCCTCGCCGTCG[G/C]CGCCGTTCTTTCCGTCGTCGATGCCGCCAAGCCCGACATGGTCGACCTCCGCGATGTGAAGATCGTGAAGAAGCTCGGCGGCACCGTCGACGACACCGAGCTCGTGAAAGGTCTCGTCTTTGACAAGAAGGTCAGCCATGCCGCCGGGGGACCCACCCGCATGGAGAACGCCAAGATCGC |
| >Gm05_38589019 | TGCTGAGGCGCTTGAAGTTATTCCCTATACTCTGGCTGAGAATGCTGGTTTGAACCCGATTGCCATTGTTACCGAGCTGAGGAATCGTCATGCACAGGGTGAGATAAATGCTGGAATAAATGTGAGGAAGGGTCAGATTACCAACATCTTGGAGGAGAATGTGGTGCAGCCCCTTCTTG[G/A]TAGCACAAGTGCGATCATGTTGGCGACAGAGTGTGTGCGGATGATTTTGAAGATTGATGATATTGTAACTGTGAGGTAGAGTTGATTGAACAATGTGGAATTTAGAGAGAAACTGAATCACCCATTATCTTCTTTTTTTTTTTTTTTGTACTTCGTGCTTTAATTTTATGTTGGTAGTTT |
| >Gm05_38596037 | GTAGATAAAATAGAGGTAGAGGTGTGGTAGATTTGAGAGCAACATTGAAATGCATGCCAAGACAGACTCGGAGGTAACAAGCCTGGATGCGTCGTCCAGCACAAGGTCTCCTCGGCGAGCAGTGTACTACGTTCAGAGCCCTTCCCACGATGGGGAGAAAACGACGACGTCGTTGCACT[T/T]CACCCCTGTTCTCAGCCCCATGGGTTCCCCTCCTCACTCTCACTCCTCCTCCAGCCGCTTCTCCGCTTCACGCCACCGCAATAACCATAATAATAAATCTTGGAAGGGCATCGACGTCATCGAAGAAGAGGGTCTTCTCCAATCCGAATTAGATCGCCAACATTCTCTCTCTCGTCGATA |
| >Gm05_38696065 | AATACCACAGTACAGTGCGTTCAGGAAAAATGAAAAACCAAGCCCCAGAACTCGATTTCAAGTGGGTAACAGAGCAGTAGAGTTGATCCATTCACACGTAGGTAGCTACTCTCCTCAGAAGAACCAATTTTCATAAGCACCATGACGAATATCGAATATTTGAACTTAGTGGAATCAGG[G/T]TCAAACTCATGAGGTGTATTCAAATGGTTGAGGAGGTTGAGGTTCCTCATCCACAGCCATGGCTGATGAAGAACTCTGCAATCCTGTTGCTGACCCACCAGCAGCAGAACTGGTAGATGAGGGCGTGTCAGTTAGAGCAAGCACTTCTGGCTCAGTAGGATGCAAGTCTCTGAGAAGCAC |
| >Gm05_38765188 | GGAGTTTGACAATGATAACAAATTCCCACTAAACATAACTCTGCAGATCTGAGCATCCCTAAACCCACTGAAAAGGCGATTTTTAATTTTCTTTCTTGGTTGAGTATGGCAGGTATTGCAATGGAACATTTTCTCTGGACTAAAGAAAACCAAGCATGTGCGACCGAGAGGAATAGCAC[C/A]CTAGGTCTTCTAACTGTTTACCCAGTAAAGTCGGGAAGTTTTCCACTGTTGATTTTTCTCACCGGGAAATTCAAGAATGGAAGAAAGAATGCTACTCTGTGTATATCTCTCTGTATATTAAGTGTAATTTGTTTATACTTGTTAAAGGGTGCTTTATCAAATCTTGTCACCGGTAACTTT |
| >Gm05_38863867 | AGATTCCTCGTCCCTGGGAGCGTCGTTCCTCCTGCGGTACTCGAGCCACACGAGGGCCACGTGGACGAGGCACTGCAGCGCGTAGCCGCAGATCCACCAGCGGATCGGCGTGTTGGGGTTCTCCTTGACGGTGCAGGCGAGCATCACCGCCGAGACCAGCACGAATGCCATGTTCCACG[T/C]TATGTCGAGCGCCACCACCGGCTTCGAGTAGGTCCAGTCGGCGCGGCGCTCCTCCAGCTCACGCGCCGCCGTCTCCCGGACCACGGCGGAGTGGCCGCGGCGGCCGAGGAGGAGCGCTAGGATGGGGAGGCGGGCGGCGGCATCGGGGCGCGGGAGAAGGAGCGGCGCGTGGGACTGAGG |
| >Gm05_38896514 | ATCTCTTGCAGATTGTTCTCTGCAGCGATGTATAGCGCAGTCTCTCCAGCATCGTTCTGAAGAGACATCACATCAGAGAGCGATGACCATTCTTCATTCTTCACTTTCTCCACCAGTTTCTTCACCCCATCAAAGTCCCCAGATCCAACGCTCGAAAATATTGATTGGTACGCTAAGAA[C/T]CGCACACCCTTTGCCTCCATCATTCATTCACTTTCTCTCTCTCAAGTTTCAATTCAACAAACAAAAAACAAAGACAGGGGTTGGTTGTTGTTTTTCACTGTTTCAGCTTCCTTCCATCATCAGTTGCAGAAAAGGGTGTCCTAAAGTATGAAACTTTTTATTTTTCTTTGTATCAAAAAA |
| >Gm05_39082823 | CCTTTTTTGTTTAATTAATTTATTTTTCTTTGAACTTGGTACGGTTAGGGTGGCATGGAAATGTCGAGCAACGAAGTCGGGGAGTAGCCATGACTGCTACAACAGCTCCATCAGTCGAAAATGGCATGAGCCGTTGAATAGTATGCAGTTCTGTAACTAAGACAATGTGTCTACGATGC[T/C]CGTGTTAAACATGAAGAATAATAATGTTTGAAGAATGGTTCATTCCTTTTTTTCGATCCCCTTTTCATATTAATAGTTGTCATTTAAATTAATGTTAGACTACTTTTATAATAGATGCGGTATTACAACGTATCTTTTTCTGTATCCAATTGTGGCAACGAGGATACAATATAAGTTCTT |
| >Gm05_ | TGGTTCATTCCTTTTTTTCGATCCCCTTTTCATATTAATAGTTGTCATTTAAATTAATGTTAGA |

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| 3908303 8 | CTACTTTTATAATAGATGCGGTATTACAACGTATCTTTTTCTGTATCCAATTGTGGCAACGA GGATACAATATAAGTTCTTATGCATTTATCTTAACTTCCGCCGCTAGGCTGAT[G/C]ATAGTG GTTTACAATGCATCTATTTATAAAATAAAATAAAAGACAATGGATCTATTTATCCTTTCATCC TGTGTGAATATGTTTACAAAATCTAAGGTTTTTGTGAAACATGGAATGACTTTCTTGAAAAGT GTGGTTGAAATGTACACTTGACTTATAGAACCAGTAACTCTTGATGTA |
| >Gm05_ 3908541 6 | GATTTCCGCAATTTTCTTTGTAATTGGGGTGAGGTGGTGGTGTGGCTGGGGCTGGGGCTG GGTATACTCTTGCTTCTACCGCTCCTATATGAGACAACAGTACGATTTGCGGGGAAATGCC TGTACGGATTGCTTGATTCATTTCTTCTGCGAGCCCTGTGCCCTCTGTCAAGAATATC[G/A] TGAGCTTCAATTCCGTGGATTTCACATGACTATTGGTATCTACCATTCGCTTAATTCATTATT ATGGCCCCTAATTTTGTTTTGCTTTCCTTTTTTCCACATCAAAACAACTGCTTCCATTACTCT CACTTTCATTTTTCTGTTTTGTTACTCCTTTCTTCAATTGATACAGCTCATAAA |
| >Gm07_ 8426860 | TATGTATCAGGCTCTTCAATAACTTTACCGGACTCCACACTGGAATCTGCACTAGACTCCAA ACCGGACTCTGCACTAGACTCCACGCCGGACTGCACAGAATACAGCCTTTCAGCAGCCTC CCTCATTTCTTTTGGTGGTTCATGAAATGTAAAGCAACCGTAGATAGCAAGACATGC[A/C]T ACAATCCCAGTGAACATAAACACGTTTAAAGCCTTGATTGAATCAACGTGTAAATTGCGACT AGACTACACTCAAAATTTCCAGACAAGACTCCGCACTGTTTTCCTAGTTCCACTTTGTGAGA ACTAACCCCATTTCCATTAACTTTTTTTCTTTCTTTCAAAAAATAAAACAAAGAA |
| >Gm08_ 2134000 | TGAACTTCTCCGGATGACCCTTCCATCCTGTGGACAGGAACTCCAGGCTCTCCCCGATCAC CGGGTAACCGGTGGCTCCCGGTGGCAGGTTCGGGGCCGCAAATGCAGACCTGTGCTTGT AGAAGAGGACGAAGAGGGAGAGGGTCACTATAGAAACGAAGAGGAGAAGGAGGGAGAGA [A/C]GCAAGTTATTATCCTCCATTCTTCTCGTTTGAGTTAATTTCTTAATTAGTTTTGCTTCGT CACTGATAAATTAAGCTTCTTATAATGTGTTTTAACCCACAGTAGTGCAGTGGCATTTGGCT TGTGTCTTGGGTGCCAATTTATAAGCACAATCCTAGCTGGGGAGTGCGCAATGTGAAC |
| >Gm08_ 2798583 | TGTAATCAAGAGGCGTCGGAAATCTCAAAGAAAAAAATGATGAAACAAATCAAAGTAGCAA TCGGCATTAGATCGGTGAGCTACAGTGACATAAAAATGAAATAGAATAGAACATATGGAAA TGATGAGAGAAAGAAATAGAAAACCTGAAACACCGAGATCATAGCCAAAGAGAGAAC[T/A] GCCAAGGGCCCCAACGAAGCATGTATAGACGAAATACCAACTGAACTTGTGCTCGTAAAGA TGAGCCCTTTTTCCTGGTCCTCCAATCTCTACTCCTCCACCAGCCATTCTCTGTTTCAAAAG AGAAAAGGGAAAGGTCCACCAAACACAGCCTTACAGGTTACACATACAGAACTCCAG |
| >Gm08_ 4388343 7 | ACGCAGAACCACCAAGTCAAGCCGGTTCGTGACTCGGATTCTCAATTCCTCGTTCATTCCC GAACGAATTTTAAATTCCGAAGAAAACCGCACCGAACACTGAATTTCAGATTCTGAACAAGT TTCTTCCGCGAAACAGCACAGCACTTCAATTTCACGTGGAACAGAGACAAAGGGAT[C/G]C GTGGTTCGAATTCTCAATCGATTTTCAAATTCCGAACAGCGAACAGTACTTCAATTTCACGT CGAACTAGTCAAAGCGATTCAAATCGATTTCGCGAACTCGTCCGATATTTTCCCTGCACTG ACTTAGTGATTCGTTTCATCTTTCTCAGCGCGTCTTCGATTTTTCCGTTAGTCGAT |
| >Gm08_ 4396066 7 | GCCACCTTTGGGTGACCTTTTATAATTTTTTTTTTGTCTACTTTTTGGTGTTTATGTAACACT ATCACATTGTCATTTTTCAAAATATTATCCATTAAAAAAAGAATTGTAATCTAATTGTGTAATT GAAACATCTTTGAGGTACTTTCGTGATTTTGAGGTAGAAACTATCGGTTTAA[G/A]GGAGAC ATCAAGGCGTTGTTCAGTTGCCAAATGTGGGACAAGACTTAAGGATACAGTCCTTGACTGG GAGGTACTACATTTTTCATTTGCTTGACGGTAATTTGGTTGAGTCTCAAAAATTATGATTCAT TTTGGTTGCAAGTTGTGCCACATGGGTTTTGTTGTTTACTTTGGTATTGA |
| >Gm08_ 4396787 4 | AATGTTGTTCAGTACAGCAAAACATGTAAAGCAGCCCTTGATTCTCTTAGTAATGGTGATTT TAAAAAAAGAAAAGCTAGTGTGACTGGTACTGGATCATCTAGGAAGCGTTCAAAAGGGTCC TCCAAGTGTAAAAGAGAATGTTAGGGGTCATATCTAGGTTTTGTACGTATGATAAC[A/C]TCA AGCATTAGAAACTGACATAGAGACTGAGTGAATTTTGTTAGATGTTACACTCAGTCTCCCCT AAATGGTGTCCATGATACTAAAGGCTTTTGATACCGTAATTACTAATATAGTGGGTATTCTT GGTGTGGCTTTTGGAATGTTTCTTATTGAAAATTCCAGACAACTTGACGTTAA |
| >Gm08_ 4399335 2 | TTAGAGCCAATGTTGTTGATTTAACTGCAACAGATATTGGTAATCTTCCCTTGTCTTTTCTTA GGTAGAGGCCTTGGTACACAGGTACATTGATAAGAACCAAAACTCCACTTAGTAGAACTTG CAATGCCATTGTTTCATAAATTCTGAGACCCCCTTCACTTATGAATACTTGCTTT[A/C]GTAA CATTCCAAGAAGACAAAACAAATTGAGCAATGCAAGTGTTGCAAGTAAAGTGAGCATTGGG GATGAGTTTCCAAACTCCATAACTTCTTTTTCATATCTTTGGGAAACATTTTCTTCTGCTACC TTTGCAGATATAACAAAGGCTGATTCTGAAAACCCGAAAAACTTCAAGATGA |
| >Gm08_ 4399426 2 | GGACAGGAAATGGAAATAAGCAATTTCAATATAAAATAACCCCAAGTGGTAAAAATGCCCTT ATCTAACAGCTTAAAAAGAGATTCAGTCCTTAACAAACTATACTTGTGCTGCTAAGTGCTAA GAGGGTCTCATATTAATTCATACCTGTGGAAACAAGGGAATGCCTTTGAGGAGAT[A/C]TAG TGAAGGGATGATGCAGTAATACAGAGTTGGCCAGGAAAGAAGCACCCATAGATTATAGTAA |

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| | CAATATCCCATTTGGAGGCCTGGACTGATCAATCCATAAGCATACCATGCAGGACTATACT<br>TAGAAAGCACAATTTGAAAGCCTCCTTCAGACCATCTCTTATGTTGAACTAGTGC |
| >Gm08_<br>43994881 | AAAAGTTAATTAATGGTCACGTGATCACTTAAAAAATTTACATGCATGTTATCTCTTAATGTT<br>GATTGTTCAAATATGATTTTATAGTACTTATATATATAGTTCTTATTTTTCACAATAATGAGCT<br>AAGAGAGGGACAATGAGAAAGAATGTGACCTTTTTTCCCCATAATGTGTTTT[A/T]CTCATAG<br>GTACAACTAGCAAGAGCCTTTGATTTTTCTTCCAGTTCATGCAAGCTGCCTTCTTTCATATG<br>ATCAATATTCTTATACTCTTTCCAATCATTCTTGTATTGGTCATTGAACTTTCTTCCGCATAG<br>TATCTCTCTTCTGTGAAAGCAGCCAGTTCCAATATAAAAAGGTCCACC |
| >Gm08_<br>45632650 | GAAGAACAACAAAAAGCTTCATTTGCCAGCATGAGTTTATTCTTCTGTTCTTGAAAACAAGG<br>GTCTAAGTGGACAATTAACAGTAAGCAGAGAGGATTCACAAATTTGTCTGGACATAGTGGT<br>TTCTGATTTACAATTGCCTATTTGTTCGTTCTTGCCACCTCAAATACTACTGTACT[G/A]ATGA<br>CTAGGAAGATTATAGACAAAAAGCATCAATTTGTTTGTGATTGTAATTTGCAATTTTAACTTG<br>AAAAAGTATTTAGATCTAGATTGTGGCACAATGCATTTTGATCTTTTACTCTTCCCTTTCTTC<br>ATTTAACTTGGGTAGTATTAATACAGATAAAGATCGTTCTTGATGAACAC |
| >Gm08_<br>45695835 | TCCTTAGATGTTAAGATTGGGATGCATGGATGAAACTAAGGATCTGCTCTTCTTGTAAATGT<br>CAACTCCACGGGAGGTGTTGTTGAGGATAATTTAGTAATTTAGCCTAATATTCTCGTTCCGT<br>TCTGTTCCAAATGGCATCACTCTCCACCACCGCACCCGGCGTCCCACCCTTCCCT[G/C]CG<br>CCCACCGCCGCCCGCCGCGCCGCTTCAAGACGATTCCAAGCCTCGCCTCGCCTGGACCC<br>GGAACCCGACCCTGAACCCCCTTCTCCTTCTTCTTTGTCGGCGTCATTGGTGGTCACCGAC<br>GAGCGGACGCGGAGAATAGCGAGGGAGCTGGAGAAGCTGAAGGCGCGGGAGCGGAAGG |
| >Gm13_<br>5197418 | GCATAGCATAATTCACAAAACAAACAAAAAAATTAACAAAAAAAAAAAAACAAAGCGACCAC<br>CCATTTGTCTAAAGAGAAGAAAAGGTCAAACCTGGGACTCCACGAGAGCTGAGTGACCCG<br>TGTGGGATCAAACTTCACTGAAGAGCCTCCTCTGTTCAACCTAAGCACCGATCCATG[A/C]C<br>TGAAAAAACCAACACAAACAAATCAAAAACAAACAAAAGGTCAAATTTTGCATGCCTTCGCC<br>AACAGAGAGAGAGAGAGAGAAAAAGGGGGCAAAAGGGTGTGCGGTATTATCGTCATTACG<br>TGGCCTTGGCGTCTTGGTCCAAACCGGGCAATCGAATTGATGAAACAGAGATCTCGA |
| >Gm13_<br>9272223 | TGAATGAATATGCATAAACAATTATTCTCTTGTGATATTTGAGTAACGATTATTTTATTTATTT<br>TGTCAGAACAAGGCACAACTGGTTGTGATTGCTCATGACGTGGACCCAATTGAGCTGGTG<br>GTCTGGCTTCCAACATTGTGTAGGAAGATGGAAATTCCATACTGCATTGTCAAGA[T/A]CTA<br>CTCTAACAATCATGAGCATTGTGCAGCAAGATGTTTGAAAGGGCAGTCAAACAGGAGAATT<br>ATTTCTACGGATGAAGTTAGAAAACACCAGATCTGGCCAAATGTGGACTGTATTAAAAGGC<br>AGTGTTTATAAAATATCTCAGCATATGAAGTTTCACCTTGAAGGTACTGCTATAA |
| >Gm13_<br>35524268 | AGTGATCAAATGAATAGTGAAACTCTGATTCTGATTGGAGAGTGATACCAAAAGTAATTAAA<br>GAAACTTCTGGCTCTAAGTATTGTGCTTTTTTTATTTGTGAGGCATTTTGGTTATTGCATTAT<br>GTGTTATGCTGTAATGCATGCAGGCTGCAAGGAATGCTGGCGTGCCAGTAGTGT[C/G]TGA<br>TGCGGGGGGCATGGATGGGCCCCTTCCACCACAATTATTGAATTTTGTTGATATTCTGAGT<br>CCTAATGAAACTGAACTTGCTCGCCTTACCGGAATGCCAACAGAAAGTTTTGAAGAGATTG<br>CACAGGCTGCTTTGAAATGCCATGAATTGGTCAGTTCAAGTAATGACTTTAGGGG |
| >Gm13_<br>35524361 | TTATTTGTGAGGCATTTTGGTTATTGCATTATGTGTTATGCTGTAATGCATGCAGGCTGCAA<br>GGAATGCTGGCGTGCCAGTAGTGTTTGATGCGGGGGGCATGGATGGGCCCCTTCCACCA<br>CAATTATTGAATTTTGTTGATATTCTGAGTCCTAATGAAACTGAACTTGCTCGCCTTA[G/A]C<br>GGAATGCCAACAGAAAGTTTTGAAGAGATTGCACAGGCTGCTTTGAAATGCCATGAATTGG<br>TCAGTTCAAGTAATGACTTTAGGGGTCACAATGAAATGATTCTGCACACTTTTCTACTTGAA<br>TGCCATATTCATTGCTTATGGATAGACAAGGTTTTAGATTGCGGTTATAGTTGCAA |
| >Gm13_<br>35526193 | ACATAATTAACTTCATTAGATGCATAATGCATTCCTAGTACAATTCATGAGTCCATTTATTAA<br>AAATTTCTCTAGTCTGTTGATCCTGGTCTGCGAACATAGGAGAATCTGTTAGTTCACTTCCC<br>TATTATTGGTTGTTTTACACAGGAAATACAAATCAGTGAAGATTTTGAAACGCA[A/C]TAGGA<br>ACAGGAACAGAATAACTTATGGCAGAGAGAAAGACCCTGGAAAATGGCAGCAAGTAAAGC<br>AAAAGCCCTTTTACAGAGCATTTCTGCAAGAAGGATTCTTCAGCATAATAGCTTGTTGTCAT<br>TGTAATAAGATTAGGCCAAGCACTTACCCTTTGGCAATAGAAAGAAAATGAAG |
| >Gm13_<br>35526194 | CATAATTAACTTCATTAGATGCATAATGCATTCCTAGTACAATTCATGAGTCCATTTATTAAA<br>AATTTCTCTAGTCTGTTGATCCTGGTCTGCGAACATAGGAGAATCTGTTAGTTCACTTCCCT<br>ATTATTGGTTGTTTTACACAGGAAATACAAATCAGTGAAGATTTTGAAACGCAT[A/C]AGGAA<br>CAGGAACAGAATAACTTATGGCAGAGAGAAAGACCCTGGAAAATGGCAGCAAGTAAAGCA<br>AAAGCCCTTTTACAGAGCATTTCTGCAAGAAGGATTCTTCAGCATAATAGCTTGTTGTCATT<br>GTAATAAGATTAGGCCAAGCACTTACCCTTTGGCAATAGAAAGAAAATGAAGA |
| >Gm13_ | TATATATATTATATATAATAATTTCCTTTTAATTTTTGAAGGTCCATTGTTCACTCTAGTACAA |

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| 3554978 7 | TTCCTCCTAGTTCACAACCATCTTTTACTTCATACGAGAACAAGCAAATGGCATTAGAGGCA TCAAAGGTTTCGAGATCAGTAGAATCAAATTCCAGAAGTCAATTAAGGAGCTC[A/C]TGACC TCCGCCAAGAGTGCCAGCAGGTATAAACTATATAATAAATGTGGTGCTAACCTTAACTCTTA ATAAAATTAGAATTTAGAATCAAGAATAGAGTAGGACAACAAAAAAGAAACAAAAATGATTA ACACTAGCTCAGGAAAGCTCATAAATCCATATGGTACGTACTATTAGCTGA |
| >Gm13_ 3558271 7 | ATATGATAATATAACTCTACTGATACTTCATTATTAGAACTGGAACTGATTACATGATGGATT AAGTATTCAGCATACACACTTATCCCCTAACAAATATTGCCTATGGAACAGAACTAACTGTA GTTTCTAAAGAATTTGAGCATTGGGAAAGCACAAGGGGAGCTTCAACCTGCATC[A/T]TCAT TTGATTAAACTTGAGCGCTAATATGGGTTTTGATAACATCACACAAGTGCTGAAATTCTGTG CATCATTTTTGTGATCTTTAGCTACATGGCTACTGCTTCCATAATCTTCTAATGACAGTTCAG TGTCATCATTTGTTGAAGGGAATGCTCCTGAAACCTTCAAGGGCTTCAATG |
| >Gm13_ 3558281 4 | TATTGCCTATGGAACAGAACTAACTGTAGTTTCTAAAGAATTTGAGCATTGGGAAAGCACAA GGGGAGCTTCAACCTGCATCATCATTTGATTAAACTTGAGCGCTAATATGGGTTTTGATAAC ATCACACAAGTGCTGAAATTCTGTGCATCATTTTTGTGATCTTTAGCTACATGGC[G/A]ACTG CTTCCATAATCTTCTAATGACAGTTCAGTGTCATCATTTGTTGAAGGGAATGCTCCTGAAAC CTTCAAGGGCTTCAATGCTTGCACCCTATTCAATATTTAGATTGATAAGATACTTTAGACTA CTTTCAGGCTCATATGTCAAAAAACATAATATTGATTAATTTCTTTGTGCCT |
| >Gm13_ 3560010 2 | TAATAATGTAAAAACTGGCCATCTGTACCTACAACTACAAGTACCACGTACCAGTACTTGTA CCAGATATATGGTAACTATGATATAGACAATTTCAAGTTATTCATTATCACAACTTCTGGTCT CTCTCAAAGATGCAACGGTAATTGCTCTCCTATAAATTGAATCAAACAGACAGG[G/C]ATGT TGCCAACTCCAGTTTCAGACCACATCTAGCAGCAAAAGGTCATTTCTAACTCTGATTCTGTT TTGTGCAGGAACAAGAAGTTGTCACTGTAAGAATAGTCTCAAAGATTAATGAAGTTTGCCTT TTCTTATTAGCATTAACAGATAGACATTGAGATTTTAGATGTAATGTTGATT |
| >Gm13_ 3561746 4 | GTGATAATTGCTGCACGGAGCAACAACGAGATGGATGCATCCAAACTGAAGAACGAGTTC CCTGAGCTTCTTTCCATCAAGGAATCACTGATCAAGTATGTCTTTGAGCCAAACAAGAAAAC TGCTTAAATATATTAAAGCGGTTTCATGTTTTAGACATCACAGATTATGCATTTTTG[G/A]GG CGGGCTACATAGATCACTCATTATTTCATTGTTATTTTGTTGGGTTTTGATAAGAACCATACT ACAAAAGCTAGCCATGTAGTTCTTGTTCTCTTAGCTATAAGCGATTCCTGTTTCAGCATATT TCCATTATATTACCGTGTTTAGAGGGTGACAAGTATTATAACTGGGCCAGATA |
| >Gm13_ 3569074 6 | ATTTCTATTGTGCTAGGTGAATTTAACCCAATTTTTATTCTGAATTTTCAGCCTCCTTAATTCT TTATCTATTCATTTGTAACTAAACCAAGAACATCCTAATTTTTGGTTCCCTTTTGTGAAATAT AGATGGCATGCTATTGCTTCTTGGACTTGGGATGCACAGGACGAAACGTGTG[T/C]GATTTG TAGGATGGCCTTTGATGGATGTTGTCCTGACTGTAAACTTCCTGGAGACGACTGCCCGCTG AGTAAGCTACTGATAATTTTACATGGCGATAGACATTGTTATTTTACTTGAATCCATTTGTCT TGGTTAAATTTCTTGATTGATCATTGTGTTTTGGGAATTTTCCAGTAAAG |
| >Gm13_ 3575947 6 | ATTGTCCATAGAAAGCAAAGTTTTATTTTGCACGATATAATAGGCGCCAGCGTCATTATCCA TAAAGTTACCAGTATTGATATATGCCCAATTTTTTGTTCCACTTCGGTGAAATCTTGCTGGA CCTCCAGTATCTGAATCATCATCATATGTGCTTCCATTGTCTGTTACTATCTTTC[C/G]ACCA CAATTTATATGAAGAGAATATAACGCTGTGATAAAAATTAAAAATAAAAGTTAGCAATAATTA AAATATTATTTAGAAAAATACATTCCTTCAAATTGTATTTTTCTATTCCTTTTCTTTTCTACTCA AAATAAAGATGCAGTGGAGTTATGTTAACTTATATAGGTCTAACTAGT |
| >Gm13_ 3578959 0 | TTTGCCCACTCTCTTTGTTCTCTCTTCTTGTTTAGCCTCTGTTCCGTTTATTCTGCTTGCCTT TTTTTTTTTTTTCTTTTTCTTTTTCATTCAATTCTGAAACTCTCCTTTTCAAAACCAAGATACG GTGGTTCTTTTCGGATCCTGACAAACCGCCGGACCATGATGCGGTTTGTGAT[G/C]CCTTCA AGCAGCATACGTGTGTCGACTATGCTCTTCATTTTTATGTTCCTGGCTTCCCTACACTTTGG ATCCAACGCTCAACTCATACCACAAGATGAAGGTACTTAATTCATTTCCATTTTTGTTTTTTT TTTGTTATGATTTTTGATATGTTACTATCTCTGTTCGAAACACTTTTGT |
| >Gm13_ 3578962 0 | TTTAGCCTCTGTTCCGTTTATTCTGCTTGCCTTTTTTTTTTTTTTCTTTTTCTTTTTCATTCAAT TCTGAAACTCTCCTTTTCAAAACCAAGATACGGTGGTTCTTTTCGGATCCTGACAAACCGCC GGACCATGATGCGGTTTGTGATGCCTTCAAGCAGCATACGTGTGTCGACTAT[G/C]CTCTTC ATTTTTATGTTCCTGGCTTCCCTACACTTTGGATCCAACGCTCAACTCATACCACAAGATGA AGGTACTTAATTCATTTCCATTTTTGTTTTTTTTTTGTTATGATTTTTGATATGTTACTATCTCT GTTCGAAACACTTTTGTAACTATATATAAAGTGAAACTGTCTCTTAA |
| >Gm13_ 3581567 0 | GATGTCGGAGGGTTCGGCCACGCGAACTGCGGAGGGCTCATATGCGTATGAATCAAACCG CTGAAACCCTGGGCAAGCCGGTCAGCCAGGTCCTGCCCGTGACGCTGCACCTCTTCCCAT GCCTCAAACGACCTTTCCACAGACATTTTCTTCTTCTTCTTCAACAAAATTCACTAACT[G/A] CCCATAAGACCTAGGGTTTCACTTATACTCCCAAATCTAATTAGAAGACAACAAATAAAAGC |

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| | GTAAACGAACTGAATCTAAATCTAACTCTTTCTTATCTAATCAAAGGAAAGAACAAATTCGT<br>CTTATTCACAAGGGTTTAGGGTTTCGGTTTCAGTAGTGTTTGCAAATCTAATTAAA |
| >Gm13_3581971 0 | ATTCTTATTGGTTACTAGTAATAAAACCCTTTACACTATCGACTATCAATCCACGTTCAAATT<br>GATCATGTAATAATGGTGGAGTACCTGGTCTTTGAGTTACCAAGTGTGAGTTCAAGATCATC<br>TGATCCAAATTCCTCATGGATCCTTTCTCCTTCCCAAGGCTTGACAAGCCCCAA[T/T]GTGTT<br>GCTTCCAAATGCAAATTCATCTGAAACAGCTTCAGACATAGGAATGTCAGCATTTTGATCAG<br>AGCCAGGTGGAATAGCAGGAGAGCATGTTCCACTCTGAGCAGGAGTCCACATTCGCGAAC<br>CGCTTCCGGGCAAGCCATCTTCCTTGAAGGCAAAAGGGTTTGAGGAGACCAAG |
| >Gm13_3582348 4 | AGCCTCGTCCCCGACGTCATCGATCTCAGACCTCAAAAAAACTCAAAAGGGTCCTCCTCAA<br>ACCTCCCAAAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAAATAGCCTTCTGG<br>GTCGGTCACAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTTGTGTTATAA[G/T]A<br>AGAATGTGGAGGAGATGGTTGGAAGTGGCAAAGTCAGCACATTTGGTGGATTTGGGAAGT<br>GGGTTTGTAGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTCGGAGAAATGGGAA<br>ATGGTTTTGATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGGAGGAGAAGAAGAAG |
| >Gm13_3582351 2 | GACCTCAAAAAAACTCAAAAGGGTCCTCCTCAAACCTCCCAAAGAACACAACTTTGGACCA<br>GATTCGATCCAACAAAGTTAAATAGCCTTCTGGGTCGGTCACAAATTGAAAAGGGTGTGTG<br>TGTGTTAGAAGAAGAAGGTTGTGTTATAAGAAGAATGTGGAGGAGATGGTTGGAAGT[C/A]<br>GCAAAGTCAGCACATTTGGTGGATTTGGGAAGTGGGTTTGTAGCCGGAGAGTGATCGGAG<br>ATCGGAGGAGATCTGGGTCGGAGAAATGGGAAATGGTTTTGATGAGAGTGTGTGTGGATG<br>TGTGTGAGAAAGAAGCGGAGGAGAAGAAGAAGAAAAGGAAAAGAGTGAGGAGGAGGAGG<br>C |
| >Gm13_3582353 3 | GGTCCTCCTCAAACCTCCCAAAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAA<br>ATAGCCTTCTGGGTCGGTCACAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTTG<br>TGTTATAAGAAGAATGTGGAGGAGATGGTTGGAAGTGGCAAAGTCAGCACATTTGGT[T/C]<br>GATTTGGGAAGTGGGTTTGTAGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTCG<br>GAGAAATGGGAAATGGTTTTGATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGGAG<br>GAGAAGAAGAAGAAAAGGAAAAGAGTGAGGAGGAGGAGGCACTTGATTAGCCAAATTTGC<br>G |
| >Gm13_3582355 3 | AAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAAATAGCCTTCTGGGTCGGTCA<br>CAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTTGTGTTATAAGAAGAATGTGGA<br>GGAGATGGTTGGAAGTGGCAAAGTCAGCACATTTGGTGGATTTGGGAAGTGGGTTTG[C/T]<br>AGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTCGGAGAAATGGGAAATGGTTTTG<br>ATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGGAGGAGAAGAAGAAGAAAAGGAAA<br>AGAGTGAGGAGGAGGAGGCACTTGATTAGCCAAATTTGCGGATCAAATTCATGATCACGG |
| >Gm13_3583527 7 | TCCTCTTCTCGCCGGAAAAATCAAAGAAGCTCCGAAAAGAACAAAGGAACAAAAAAAGAAA<br>CACACACACGCGAACACGAATGTTAGAAAGAAACACAGCACACAGCGCGAGTAAGCGAAT<br>TATAGAGGAAACGACATCCTTTCTGCTTTTTTTATATAAGGTGAGCTAAAACGACGAC[T/C]T<br>CGGATTTGAGAGATTTGGGATTGTGATCTGAGTAGATCTAGGCGAGGGAGGTTGGGTGGT<br>GGAGGCGGAGGAGCATGGTGGCCGGAAAAGCCGCCGGAAAAGAGAGGAAGTGGGTTTGT<br>GTTAGGTGTGAACTGTGCACAATGGGGAGAAGAGAAGGTTGAAGGAGCGAAAGAGAAAGA |
| >Gm13_3584943 1 | TGGTTTCGGTTCCCTCTGCTTATTGGTAAACACAGCGAACAAGCTCATCTTCTGCTTCTTCT<br>TCTCTGATTTTAGGGTAACATCTTTTGTGCTGTCTTTGAAGGTCTTAATCTCTTGCTCTAACT<br>GCTTCAGGTTGTTCTTGAGTTCGGTTAGGGTTTCGGAGGCAGTTTCTTCTTCTT[G/C]TTCTT<br>CTTCTTCGTCGGAGGGGGTGGGTTTTTGGGAGAGGCCGAGGGCTTGGGTGAAGAGGACG<br>TGGAGGGGCTTTTTGGTGGGCCCGGCAAGGGTTGGGGTTGGGGTTGGGGTAGGGGCGG<br>GCTGGGAGGAGGTGGGTCTGGAAGGGATTTTGAGGAGGGAAAGGGAGAGGGTGCGGCG |
| >Gm13_3584951 5 | TTTTGTGCTGTCTTTGAAGGTCTTAATCTCTTGCTCTAACTGCTTCAGGTTGTTCTTGAGTTC<br>GGTTAGGGTTTCGGAGGCAGTTTCTTCTTCTTCTTCTTCTTCGTCGGAGGGGGTGGGT<br>TTTTGGGAGAGGCCGAGGGCTTGGGTGAAGAGGACGTGGAGGGGCTTTTTGGTGG[G/A]C<br>CCGGCAAGGGTTGGGGTTGGGGTTGGGGTAGGGGCGGGCTGGGAGGAGGTGGGTCTGG<br>AAGGGATTTTGAGGAGGGAAAGGGAGAGGGTGCGGCGAGAGAAGAGGGTACTGAAGATA<br>CCCATGGAGGGCGCAGTGAGAAACCTAGAACGGAAAAGGGAGGCTTTATTTATGGGCTTC<br>TA |
| >Gm13_3586212 4 | ACTAATTAATGTCTTATGCTACCAAAGCACTCATACAATCACTAACAATGACGAACACTCAA<br>AATCACTAGTCTTAATTAAAACATCTATCAAATATGTTTTCTGAAACTTTGCAATTTCTAATTC<br>TCTAATTGCCCAATTTCTTTGCCGCGTTAGCTTCAACCCTAGCCTCGTCATTT[C/T]TTTTGC<br>TTCCGTTGTTACCATTCGGCATTTTTTGAACCACCTCATTATGTTGTCCACCTTTCCCCTGG |

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| | CTGATGGGTGACCCTCTTTTCCCTCCAACGCTTCCATGGCTGGGGCCTGACCCTCTTGTTC<br>CTCCGTGCGTTCTCACTCTAAACAACAATAACGTCAGTTCTTAATTCATAT |
| >Gm13_<br>35862205 | AACATCTATCAAATATGTTTTCTGAAACTTTGCAATTTCTAATTCTCTAATTGCCCAATTTCTT<br>TGCCGCGTTAGCTTCAACCCTAGCCTCGTCATTTCTTTTGCTTCCGTTGTTACCATTCGGCA<br>TTTTTTGAACCACCTCATTATGTTGTCCACCTTTCCCCTGGCTGATGGGTGAC[C/G]CTCTTT<br>TCCCTCCAACGCTTCCATGGCTGGGGCCTGACCCTCTTGTTCCTCCGTGCGTTCTCACTCT<br>AAACAACAATAACGTCAGTTCTTAATTCATATTTCATTTTATATATATATGCAGAACATCTAG<br>CTAAGGCTGAATGAGATTTATGCATGTAAAGAGTGTTTAACTTGATCACT |
| >Gm14_<br>27341132 | GGTGAACTCATAGATATGAGGCTGTATAGAAGCGGATGCGTGACGTGGAATGGTGATTTGT<br>AGATATGAGGTTGTATTGTTACGTCTTGCTTGCTCGGGAATTTGAAGCCATAGTTTGAAAAT<br>CCAACACCTTGAGGACAAGGTGTTTTTGATGGGCTCGGGAACCAATGTTACGTCTT[A/C]AA<br>ATTCGAGGACCAAGACAAGCTTATTGAGAGAGAAGAAGAGAGAGCTTTTTTGATATTTCTTT<br>CTTATACATATATATATTGCTAGCTGCTAGGGAACAAACTCCCAACAACAATAACAAAAGGA<br>TAAGCGCAATCATGGAATATCCTAATAGAATGATATCCATAACATTCTACACTA |
| >Gm16_<br>30464934 | TCTCTCCCTCCTCATGAGGAGAAAAAAGAAGCTTTCAACTTTCCTATTATTCATCCAACACC<br>ATCTCAAAATCGAAAGGAACAAGCTTCACCATCATCATCACCCTTTTCACTCCTCATGAGTA<br>CCAACCAAAACACCACCTTCTTCCCCCTCCCACATGGCCAAATAACTACTTCTGA[A/C]TTT<br>GTTAATAGCCAGAACAATCCATCCCAGGCTACAAATCAAGGTAAACTATATATTATTGCCAG<br>GTTGATTATATATCATATTATTCTAATAATTCATATTACCATCGATGTTATTATATGGTCCTCT<br>CAATTATATATATATCATATCATATCATATCAATAATCTGGATCCACATCT |
| >Gm16_<br>30479527 | GCGTGGAAAGCCAGTGTTCATCAGGCGCCGAACCGAGGATGATATCAAGCTGGCAAACAG<br>TGTTGATGTTGGATCTCTTCGCGATCCCCAGCTGGATGCTGATAGAGTCAAGGACCCAGAA<br>TGGCTCATTGTGATTGGGGTTTGCACCCATTTGGGTTGCATTCCATTGCCAAATGCTG[T/A]<br>TGACTTTGGGGGATGGTTTTGCCCTTGCCATGGATCACATTATGATATTTCAGGCAGAATTA<br>GGAAGGGGCCAGCACCATACAATCTGGAGGTTCCTACTTACACCTTCTTGGAAGAAAACAA<br>GTTGATGATTGGTTGAAAATAAATATGGTTCTGCATACAAGCGGAATGAGTTTACAA |
| >Gm16_<br>30493681 | GAACCTTCAGTTCATACCAAAGCCAGGATCGAAGTGTCTTACTTCAATCACTCTTCAAAGGA<br>GAGGGATTGTTACCTTATCATCATGATCAGAAAGAAGCTGAGTTAGATTTCCAAACTTCAAA<br>CAATGTTATGATGGGGGGTGGCCAATTTTCCAGTCATTTCAAGGAGCCATTGCAA[C/G]CGT<br>CGCTGACATTGGACCAGGGGCGAAGGAGAGCTACTGAGGTTTACATGCCAGAAAACATGT<br>CAGAGAATATTTATTCGGATGAAGGAAGGTATTTAATCCCCAGACAAGATCCATTGATCCC<br>CAGGCAAGATCCATTGATCCCCACGCAAGATCCATTGATCCCCAGGCAAGATCCTT |
| >Gm16_<br>30493887 | AGGAGAGCTACTGAGGTTTACATGCCAGAAAACATGTCAGAGAATATTTATTCGGATGAAG<br>GAAGGTATTTAATCCCCAGACAAGATCCATTGATCCCCAGGCAAGATCCATTGATCCCCAC<br>GCAAGATCCATTGATCCCCAGGCAAGATCCTTTGATCCCCAGGCAAGATCCATTGGT[G/A]<br>CCCAGGCAAGATCCTTTGGCTGCAGTAAATATGACTGATTGGGCTGCTAATAATGCTCGCA<br>TAGCAGGGCCTTCCCAATCTCACTTAAATACTGGAGATTTTATTGGTCATCATTGGTTTCCT<br>GCTGATCATCAAGTTCGTGGTGGTGGCTGGAATGGATCTGATGGTGGTGGTCTTTCA |
| >Gm16_<br>30517229 | GAGAAATCAGCAAAACCATTTAATCAAACCCCCAAAAAGAAAAGGCAAAAACAATAAGTTG<br>CTACCCAAAAAAATATATATGAGAGAAAATCCTCCGAAAAATTCTTTTTTTTTTATGAAATTTT<br>GGTTGCATCGACAACATAAGGGGGGGAATGCTCACAGTGGCTGCCGGAGACGGC[A/C]GC<br>GTGCGGTGGCTGAGAGTGAGAGGGTGAGCTAAAAGGGGTTGGTGAGGTCTGCGAAACAA<br>AGAGAGGAAATTAACGATCGTACGATGCACCACTAATTAGGAAATTTCGTTTAAATCGAATC<br>AAATCAAATTGATTTTACAAATCTACTTTAAAATTAAAATTTTAATTATAATAAAAA |
| >Gm16_<br>30517232 | AAATCAGCAAAACCATTTAATCAAACCCCCAAAAAGAAAAGGCAAAAACAATAAGTTGCTAC<br>CCAAAAAAATATATATGAGAGAAAATCCTCCGAAAAATTCTTTTTTTTTTATGAAATTTTGGT<br>TGCATCGACAACATAAGGGGGGGAATGCTCACAGTGGCTGCCGGAGACGGCGGC[A/C]TG<br>CGGTGGCTGAGAGTGAGAGGGTGAGCTAAAAGGGGTTGGTGAGGTCTGCGAAACAAAGA<br>GAGGAAATTAACGATCGTACGATGCACCACTAATTAGGAAATTTCGTTTAAATCGAATCAAA<br>TCAAATTGATTTTACAAATCTACTTTAAAATTAAAATTTTAATTATAATAAAAAATT |
| >Gm16_<br>30539518 | CAACAGGCGGACGGGCAAGGTTAACCGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAA<br>TGGTTTGTTAACCAGACTTTTCTTTGTCAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGAA<br>ATGGAATCCATTTCCGTTATGGTATATTAATTTTGTTAAATTGTAAGACAATATCT[A/C]TCTC<br>AGCCTTCCACAAGACATAGTAGCCAATGTTGAATTTTTCTTTATTAAAGTGGATGTGGTTTT<br>GTTCGACAACATTTACTAAAATCAATATGGTTTAGTTTGATGGTTATTTTTACAATAACATGT<br>TTTGTATGCTCTGATGACGTGTTAGTGTCAATAATGTACATATGAATTTTG |
| >Gm16_ | AACAGGCGGACGGGCAAGGTTAACCGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAAT |

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| 3053951 9 | GGTTTGTTAACCAGACTTTTCTTTGTCAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGAAA TGGAATCCATTTCCGTTATGGTATATTAATTTTGTTAAATTGTAAGACAATATCTC[A/T]CTCA GCCTTCCACAAGACATAGTAGCCAATGTTGAATTTTTCTTTATTAAAGTGGATGTGGTTTTG TTCGACAACATTTACTAAAATCAATATGGTTTAGTTTGATGGTTATTTTTACAATAACATGTTT TGTATGCTCTGATGACGTGTTAGTGTCAATAATGTACATATGAATTTTGA |
| >Gm16_ 3062652 4 | TATAATGAGGATGGTGTCAGGGAAGAGGTACTATGGTGAAGACTGTGATGTGAGTGATGTA CAGGAAGCAAGGCAATTTAGAGAGATCATTAAAGAGTTGGTGACGTTAGGAGGGGCTAATA ACCCTGGGGACTTCTTGGCTTTGCTTAGGTGGTTTGATTTTGATGGTTTGGAGAAGA[G/A]A CTAAAGAGGATTAGTAAGAGAACCGATGCGTTTTTACAAGGACTCATTGATCAGCATCGTA ATGGAAAGCATCGTGCCAATACTATGATAGATCATCTTCTTGCTCAACAGCAATCACAACCT GAATATTACACCGATCAAATCATCAAAGGACTTGCACTGGTAATTAATTAATTATT |
| >Gm16_ 3067691 4 | TCGGTACTTGGACCTCATCTCCTCCATCAGGGCCCAGTAGTGGGCCCGGTAGCACCGCCC CAGCTGCCTCGTTCGCCGCAGCCGCCGCCGGAGCACCTCCTCCCGCGTCAGCACCCGCG ACTTCGCCAGCGCCGTGTCGCCCTCGCCGCCCTCGATCGCCACCGGCCACGGCGGAGAG G[G/C]TGCAGAACCCCACTCGTCCATCGGTGCCGAGTCGCCAACTCGGAACCGGGTTTCTT GCTGGAACTCGGAAGAGTTCGTTACGGTAATTTTATTTTCTGACTTTGATTCTTCGGCGTTG GGAAACATTTAGAACCGTTGGATACCGTTTAAAAATGATCTGACGATCAGTTTGAAAGTAAT |
| >Gm16_ 3118922 5 | ACTCCTTTCGTGGGTCCCCCGACATGGGCGCTACTACTAATAACGGATTTCGAACCATTCA CACTCTCATAACTCATTCTTCAAACAAACAAAACCTTAAAAACAAAACATACTAAACCTTCTC CTTTTCTTTTCTCTTCCATTTTCCCAACTCACACTTCTCATTTTCTCAGGGAAAT[G/A]GAAAA AGGAAAATGATCGGAAACTTCATCGACGACATTGACTGCGGCAACTTCTTCGACCACATCG ACGACCTCCTCGAATTCCCCGACGACGCCGCCGCCGCTGACACCTCCGCCGCCGCTCCT GTCCCTCCACCGGCGAACTTCTGGTCCGCCGAGTCCGACTCGCTCCCCGCCACCG |
| >Gm16_ 3119186 3 | CAACCCCAATCCAGTGATGCAGCTCATCTCCCCTGCATCCTCCACTGGTGAGAACACGCA GCACAACGCTGCCAACACCTCCAAGGCATCATCGGATTCCGAGAATTTCGCTGAGTCGGT GATCAAGGCTCCTAAGCAGGCCTCTGGGGAGCACAAGAAGAAAAAGAAGATCAAAGTGA[T /C]GTTCCCATCAGGTCAAGAGCGGAATGCACCATCACAGGCAATTAGGAAATGCTTGCACT GTGAGATAACCAAGACACCACAGTGGAGGGCAGGGCCAATGGGGCCGAAAACACTCTGC AATGCTTGTGGCGTGCGCTACAAGTCAGGCCGGCTTTTCCCCGAATATCGCCCTGCAGCG AG |
| >Gm16_ 3120445 1 | CCCAATCGAAGCCCCACCCATGACTGAGCATGCAATTGCAATTGCAATGCCCAGACACACT CTGAAGGATACGCAGGGCATGCCCGGCACCCTCGGTGGCTTCCTCTTGCGCTTCGCCCAG TTCTCTTTCGCCCTCGTTTCCCTCTCCGTCATGGCTACCACCTCCGATTTCCCTTCTG[C/G] CACTGCCTTCCGGTATTCATTAATTCCCCCCTTTCCTTATTTTCTGTTTAATCGTGCTTATTT TTAATTGGGTTTGTGGTAATTGTTGATTTGGGCTTGTTTTTTGTGTTCAAAATCAGCACCCC AGATTTTATTTTTTTTCAAGTGGGTTTTATCAAGGGAGCAATGAAATGAACTCTT |
| >Gm16_ 3122568 4 | TAACAAAACAGATCATATATCTGCCATTATTCTAAAACAGAAAAGGATAGTTAAAATAAAGAA TACAAGGTTACTCCAGAATAACGATGTAGTAAAAGGAAAGTATAATGTACAAAGGTTTCTAA ACAATACAATATGGTGAAACAAATAGGATACCTGCATAATTTCAGGTGCATCAG[G/C]CCCA CACATTGAGGCTCCGAGAACCTTATCTGTCTCAGCATCAACAACAAGCTTCATAACAGTTTT TTCTTGTCGCCTATTTGAAGAATATCAGCAACCATAATCTAGATAAGAAAGTTATGCTGCAA AGAACATAACTAATACTGGGTCCAACTGAGATTGAAGAGCATGTGATGATAA |
| >Gm16_ 3136345 1 | TCGGGTCGTTTTCGATATGTCGTCGCCCGCCGCGTATCCTATATCGGCTGCGTAACCAATG AGGAACACGGCGACGGCGACGGCTAAGGCGCCCCCGAGAATAAAGGGGCGCCTGCGAC CAAAGCGGGAGGTACAGTGGTCGCTGTAGTAGCCCACAATGGGCTGTACCACGAGCCCG G[G/C]AATGGGCCCGCAGAGCCAGATGAAGGAGGCCGCCGCGTGGGGGACTCCTAAAAG CTGAACGTAGGGGGTTAGAAGAGAGAGCTGGAGAGCCCACCCGAACTGTATGCCGGCGG CGATGGACGCCACGGCAAACATTTTTCGGAGTGGGCTCGCTTGGGCCGGGCCGGCCTCC AGACTAAG |
| >Gm16_ 3142702 4 | AGATTTGGATTGGAATGGTTTCCCCAAGCAAATAAAATTAAATTAAAAATAAAAAAGACAAG CCCTCCTCAAAATTATCATAAAGCAGTTAACTCACAAGCCTCCAACCCCATTGATCCTACCC AACAAAGAAAATCCCAATGTCATAATTGGTGTCATTTCATTTCTCTAGTGTGTGG[G/A]ATCT TTTTTCTTAGCATGTGTCATCTTTGTTGTTCCCATTTCCATTCACCAAGAGCCCTTTGCTTTC TTCATCTCTCTCATTTTCCTTATTCCTAAGCCCATTGCAACTACCCATTTCAATCCTAGTGAG CTTCTCAGCCTTCAAAGCCTCAGCTTCCCAATCTGTCCTCACCAACACAA |
| >Gm16_ 3142730 | ATTGCAACTACCCATTTCAATCCTAGTGAGCTTCTCAGCCTTCAAAGCCTCAGCTTCCCAAT CTGTCCTCACCAACACAACATAGAGGATTGACACAGCACATGCCACCTGGGCCGACAGAA |

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| 4 | GCCCAAACCAAAGCCCACTGAACCCCACCTTGAACCAAAAGGCCAGGCCCACGGCCA[T/T]<br>TGGGGTGCCCACAAAGTAGAATGAGCCTAGGTTTATGTGGGCCCCAATACCAGGTCGGGC<br>CGTGCCACGAAGGATCCCACAGCCCGTGGTTTGTGGACAGTTCCCAAGCTCACACAGGCC<br>CATAATCGGCATGACTGATGCAACCAAGGCTTTTACGGGCTCGTCGTTGGTGAAAAGCCC |
| >Gm16_3145991 2 | TGAGGAATTGTAGATTTGTGAATGAAGAGTTGGGCTGTGGAGCAAGTAAAAGTGCGGGAAT<br>CAACATGGTGTTGTATTATGATTGATTGATAACCTTGTCCCTAAGTATGTGGTGAGAGGCCT<br>GATCCCGAGGATTTTGTATTTAGAAAAATATCTGTTGAGAGAGGTGAACCCTTAAA[G/T]GA<br>ATCTTAGTACTTGAGGGATTAGCCCTGGCTCCGAACGGGAAGATACCTGAGTGCAACCAAA<br>AAAAGAAAAAGGAAGAGTAAAAGTGTGGGAAGAACAAAAAGAGGAGAAAAATAGATTGAG<br>GGCATCTTGGTTTGTTAGAACTTAACTGCAAGAATTATGGAGTAATTGATGTTGTTT |
| >Gm16_3145996 9 | GAATCAACATGGTGTTGTATTATGATTGATTGATAACCTTGTCCCTAAGTATGTGGTGAGAG<br>GCCTGATCCCGAGGATTTTGTATTTAGAAAAATATCTGTTGAGAGAGGTGAACCCTTAAATG<br>AATCTTAGTACTTGAGGGATTAGCCCTGGCTCCGAACGGGAAGATACCTGAGTGC[C/A]AC<br>CAAAAAAAGAAAAAGGAAGAGTAAAAGTGTGGGAAGAACAAAAAGAGGAGAAAAATAGATT<br>GAGGGCATCTTGGTTTGTTAGAACTTAACTGCAAGAATTATGGAGTAATTGATGTTGTTTTG<br>CATGTACTGGAAGAAAAAGAAGGTAGTGATTAGATTTAATTTTTAATAGACATAT |
| >Gm16_3146155 4 | TGCAGAAAATGAAGGAAGATGTCATGCTGTTGCAACCTGCTTAACCAGGAAATTATCTCTT<br>CCACCCTCTACATTTCACTCTTTTCTTGCACCATCATCATCCTCCAAAGTGACCCCACAACC<br>TACTGGTTCAAGTAACAACTTGATACCTGGTACACCGCGGCTTGTACGAAGCCGTG[T/C]C<br>GTGACAAGGGACAGAGTAAGAAACTGGAATTTTGATGAAATTGCAATGGAGTCCTAGTCTA<br>AACTATAAGATAGAATAAGACTAGGGAATTTTCTTGTGGGATAGTTTATAGCATGTTATTGC<br>TATTTTGCCCCTTTGAATTTTGTTATGGGTGCAATTTATCTCTTTCTCTAGTTTTC |
| >Gm16_3147516 3 | TATAAGTGTTGTTTTCAAATATTAAGGAGTTGTGGGGTGCGAGCGTGATTTTCTCGTTATAA<br>AAATAAGAAGGAAGAGTGATTCAAATCTGAAGCTGAACCCTAACTAGCTGAGCAGACGGAG<br>GAGAACTCGACTGAAGCTGCCTCTGCGACGCCGTTTCGATTCAGCCTCAGACATTT[C/T]TG<br>TAAGTTCATCGTTTCACACTTTACACAAATACCCTATTCTTCGCATACTTCGTCGCTGCAAC<br>CCCGAACAACGATAACCTAATCAATTTGGCTTCGCCCCCTCTTTTTCTCTTCACAAACAATA<br>ACAATTCACGTGTGATTGATTTCTCCAGTGTTTTACGAGTTTCAAAGATGCTCG |
| >Gm16_3147635 9 | CATTTATCAAAAGCCCAGGTTAGCAATGCAAAACAGTGAAAGTGTCTGCTTGCTGCTGTAG<br>GTTGCAGTCATGGTGCAAGAAAATGGCAAGAGGAAGAAACCAAACATTCTGGTGACTGGC<br>ACACCGGGGACAGGAAAGACAACTGTGTGCACTGCTCTAGCTGAAGCCACCCAGCTCT[T/<br>C]TCACATCAATGTCGGAGAATTAGTCAAAGAAAAGAACTTGCATGATGGATGGGATGATGA<br>GCTTGATTGTTACCTTCTTAATGAAGACTTGGTAAGCTATCAATTTATATAATTTGGATCATT<br>CCTATATGCTTGTGTTTGAGATTTAGCTCCTCTAAAGTAAAATGAGGAGATGTGTAA |
| >Gm16_3147995 8 | TAGGACTTGTAGTTGGGGACACCATGAGACTATTAAACCCTTCTCTGATGTGTCAGCAAAC<br>TCCTTTGGAAGCTTTCCCTTATCACAATCTCTAATCACCCACATGAAATAACTTCCACTATCT<br>CCCAAACCCCAAGCCAGTTCCTCAGTTTGCTCCTCATTAAGCCCTGCCATGCTCC[G/C]GAA<br>AGAGACATACACAACTGACCCTTTTGGTTTTTCATCAAGCCATTTGATGCAAGCTTCTGAGT<br>TTGGATTATACATGTTAACACCATAGTCCTTGTCATCTTGGAGTCTTTTGTCCAAGTAGATA<br>GATGGCAGGCATGGTCCTATTGGCTTTAATGGCCAAATCTTCACCAGCCAATC |
| >Gm16_3150633 3 | TAAGTAACGATAACAGGGGCCACAAGAGAGACGTTAACTAGCAGCTTCATTTGTCGCTACA<br>AAATATTTGAGGTCACCAATTGAGGACACTAGAACCATAACAAATTTCAAATGCGCATACAA<br>AATTTTCTTCCACTCTTCAAAACCACGCGAATTCTAATCTGAACTTCAACACTCCG[G/A]GGA<br>ACAAAAATGCTACTCCTTCCCGTGCTTTCTCTCTCTCCCTCCTTCCCCTCTCTCGCTTCGAA<br>CCGTTATCTCCAATTTCGACCTCGTCGGAGCCGCCGCGTCGTCCGATGCGCCGCCCCGGA<br>GTCCGGTGGCGATGAGTTCACGGCGAAGTCGGGGTACCTGTTCGAGCTGAGCGCC |
| >Gm16_3150658 7 | CCAATTTCGACCTCGTCGGAGCCGCCGCGTCGTCCGATGCGCCGCCCCGGAGTCCGGTG<br>GCGATGAGTTCACGGCGAAGTCGGGGTACCTGTTCGAGCTGAGCGCCACGGAGGCGGAT<br>TCGCTGGGGGAATACCGGATACCGAAAATCGCGGCCGTATACTCGCGGAAGCCTCTGCTC<br>G[C/T]TGCTCGCCGCTTGGTGCAGACCGGCGTCGCGTTCGGGAAGTGGTTCGGTCTCCGC<br>TACATCGATACTCTCTTGGACCGCTCCGAGTCAATGTTTCAGGTTTCGTAACGCTCTGTTTG<br>TTTCTATTTGTTTATTTATTTTGGCGAATTCAGGTTTGGAGGAAGTAGTTTCGTGTTATTAGA |
| >Gm16_3151605 2 | TCGTAAATTGCAATATGGGGATCTTTTTTGGATTTTACTTGTTTTATTATACCTGACTTTTAG<br>TCAATCGTTCAGCAATAGGTATATTAAACTTGGAACGCTACATGGACAATCATTTTACTGTT<br>TTGTTTATCCTAATAAAAAAAATTGTACTTTTCATCAATGACATGTAGGAAAGC[C/G]GACAG<br>GCGAGTCCTGACAAGAATCAAATACTGTACATGGAGGAGTTGTCGTTAGTTTTAAATCAAG<br>TTGAATCCATTCAAGACATTCTTCCTATAATTTCTGTCATTCTTGAGGTAAATCTAAGCATTA |

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| | GCATTTTATTTAAGAAATGTGGCTGTTTACCCATTTTTTCATTAACCTGTA |
| >Gm16_31516059 | TTGCAATATGGGGATCTTTTTTGGATTTTACTTGTTTTATTATACCTGACTTTTAGTCAATCG<br>TTCAGCAATAGGTATATTAAACTTGGAACGCTACATGGACAATCATTTTACTGTTTTGTTTAT<br>CCTAATAAAAAAAATTGTACTTTTCATCAATGACATGTAGGAAAGCAGACAGG[C/T]GAGTC<br>CTGACAAGAATCAAATACTGTACATGGAGGAGTTGTCGTTAGTTTTAAATCAAGTTGAATCC<br>ATTCAAGACATTCTTCCTATAATTTCTGTCATTCTTGAGGTAAATCTAAGCATTAGCATTTTA<br>TTTAAGAAATGTGGCTGTTTACCCATTTTTTCATTAACCTGTATAAGTCA |
| >Gm16_31520234 | TTGATCATCAATGGGTTTCAATTGAACGGAAAGATCTCACTTCTCAGTTGCTGTTCATGCAT<br>GTATATTTTTGGATAAAATTCAAAATTTGAAGATGTGGATCTAGTGTCAGAAAATTAATGAAT<br>TGTGTGCTGTTTTCAACCGGTGTCAATAACATGGACCAAATGGGAATGTTAGCC[G/T]TAGA<br>TTGAAGTCCATGTTTTGTAACAAAAGCTTGCAGGGAAGTATCATTTAGCCTAACCTTGTAAA<br>AGGGGCAAACTAAATTATGGATCTGATGAATTGGTGAGCAAGTGTAAGGAAAAAATATATG<br>CAGTGGGAACAAAAATTGCGTACGGGACAAAAGGCACCAAGCATCATTGTTTA |
| >Gm16_31520242 | CAATGGGTTTCAATTGAACGGAAAGATCTCACTTCTCAGTTGCTGTTCATGCATGTATATTT<br>TTGGATAAAATTCAAAATTTGAAGATGTGGATCTAGTGTCAGAAAATTAATGAATTGTGTGC<br>TGTTTTCAACCGGTGTCAATAACATGGACCAAATGGGAATGTTAGCCATAGATTG[T/G]AGT<br>CCATGTTTTGTAACAAAAGCTTGCAGGGAAGTATCATTTAGCCTAACCTTGTAAAAGGGGC<br>AAACTAAATTATGGATCTGATGAATTGGTGAGCAAGTGTAAGGAAAAAATATATGCAGTGG<br>GAACAAAAATTGCGTACGGGACAAAAGGCACCAAGCATCATTGTTTACTTCTCTA |
| >Gm16_31520380 | GTCAATAACATGGACCAAATGGGAATGTTAGCCATAGATTGAAGTCCATGTTTTGTAACAAA<br>AGCTTGCAGGGAAGTATCATTTAGCCTAACCTTGTAAAAGGGGCAAACTAAATTATGGATC<br>TGATGAATTGGTGAGCAAGTGTAAGGAAAAAATATATGCAGTGGGAACAAAAATTG[G/A]GT<br>ACGGGACAAAAGGCACCAAGCATCATTGTTTACTTCTCTAGCATTGAAGTCATTGATCAATG<br>TGAAATGGGATTAGAATTCGATGGCATCAATATGGTTAAGTAGCTGTCCGTGTTCAAGATAA<br>CTACGCTTGCATGTCGCATGTATTTTCCAGCTTTCACATGATTTCATTCAAATA |
| >Gm16_31525076 | TTGTTTTCCAATGTGAAAGAACTATACCTAAATGGGAATGATTTCACAATTCTTCCTGCCTG<br>CATTCAAGAATTTCAGTTTCTGACAGAACTTTATTTGGAAGCTTGTGAGAATCTTCATGAAAT<br>TGGATGGATTCCACCGAATTTAGAAATATTCGCTGTAATAGATTGCACATCCTT[A/G]AAAGA<br>ATTAGACCTCACACTTCTTCCCACATGGAACAAAGAATGTTGCCTTTTAAGGAAGCTTCTTT<br>TATGTGGATGCCGGAATCTTGAAAAACTTAAAGGGATTCCACTGAACATAGAAGAATTGATT<br>GTAGAATCCTGCAATTCCTTGAAAGATCTAGATCTTACTCTTCCTCCTTCA |
| >Gm16_31525931 | ATTATTGATCACATAGAGGAACTATTCAATGACTGTGTTCTTTCGGAAAATGAATGGAATCA<br>TGTGGTGTGTACTACATCATGGGTACCCCAACCAATCAAACAAATTGGAATCCATGTAATCA<br>AACAAGGAAGCAACTTGGAGGATATCCAATTTACCAATCCACTATTGTCCAAAGA[T/C]GAC<br>CCAGATTTTCGCATACAACATGATGATTCAAGGAAACGAAAAAGACAAGAGTGACTGTCTT<br>CTCCCGGAGATGAAGTATCTTCCCGTTGATTGATAATAAAATTTTGTGGTTTTAGGACACCT<br>TGTTTTGATTATATATTGTGCAATGTTATGTATTCCCAATATAATTACAGGAGG |
| >Gm16_31675129 | ATTAAAACGTGGCACAGCAAGATTTGAGTCCAGATTGTTAACCATTGTAGCCACTTTGTTAG<br>CATCACCCATCCAATTGACAATAATTTTGTTATCAACTAGTACATTCACATCTTTTTCAGTGT<br>TGATAAGAAAGTTTAGAATCACTAGGTATTGAGTAATGCTGTTTGTATCATATG[G/A]AAGGT<br>GACATTCCTCAAATGTCAATATATTCCTGAAGAACACTTCTGAATTGTCAGTTATATTCAAGA<br>TTGGCATTGTCAACACACCCTCATCGGAATAGGTCATGTCAAGTAAGCATTCATTTTCATTT<br>GGACTGACCTTGAATTTAAGACCTGCCTCCCGTAGTTGGCTTGCACTGTA |
| >Gm16_31675346 | AACACTTCTGAATTGTCAGTTATATTCAAGATTGGCATTGTCAACACACCCTCATCGGAATA<br>GGTCATGTCAAGTAAGCATTCATTTTCATTTGGACTGACCTTGAATTTAAGACCTGCCTCCC<br>GTAGTTGGCTTGCACTGTATACATGTTTTATACCTTTGCATTCTTTTTGTTCTCT[C/T]GGAAC<br>AAATTTTGATGACGATATTATACTAGTTCTCATAAGATCGGTGAAGTGCTTTGGGGACTCTG<br>TTGGACACGATGTTGTTCCATATCCCACATGCTTCAAACAGTTGAAAGAAATCTGAAGAAAG<br>GTGGGAAATTCCTGATTCATACCAGCGATGTTGTAAAGTTGTTCAAGAACA |
| >Gm16_31708589 | AATTGACAAATATCTTTTATATTTAATTTTTCACCTTAATAAGAAGAAAAGGACATAGGAAGG<br>AATCAACACAATGCATGTTATGCCACAATTGCTAGAAAACGATACAAAGAAATCTGGCAGTA<br>GAAAAAACAAAAACTCCCTGTCAACCCCTTAAATCCCTTACATACCAATTACAT[T/A]TATCA<br>CTCCAAAATTCCTACACCATGCCTTCACACAAAACTCCCTCGTGCCTATATATGAAACAAAG<br>CCATTGATGCAAAAAATATGAAAAGAAGAAAAGGCAAAGGGAAAATATCTTACATACAATGC<br>ACACCTCAATCACATAATGTACATATACAGGATATAGCCAATCAAACAAAC |
| >Gm16_3170966 | ATGCATGCTGACAAGTTTATACACGATATAAGAAGCAATTCACCTGTCCAGTTAAGCAGCTA<br>AATTCCAATTACTTAAATTTGTCATGACTTGTTCATTTTCAATCTCTGCATCAGTGAAAGTTA |

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| 3 | GGGCTCGCTGTAGCTTCCTAGGAGAAAATGTCTCAACTTCAACCATATATTTGG[A/C]AGTC<br>ACAGGTCTGTGATCAGACAGTTTGAGCTCTGCCCTTCTGTAACTCAATAATCTCATTCCCTT<br>GCCATATGAAAGAATACGATCACACCTTCAAGGTGATTACAAACAAGCAGAAAATTCATCAA<br>GGGTAAGACATGTATCAAATACCATACCACTAGTTCATAAACCATGAAATGG |
| >Gm16_3173192 4 | TCTCAACGACCAGATGGCCTCCATAACAATGTCCTCCCTTTTGAAAATGAAGCACTTTATGC<br>TAACTGGAAATGGTTCAAGTTTGAGAGATAATGATGAAACAATTACCCTTGAAAGCATAATA<br>ACATTATTCATAGGAAAGCTTGATTGATAGAACCTGACATTGCATAGCACAAAAA[G/T]TTCC<br>AAAACGGGGGATTTCATTCTTGGAAGAAAACATTGAGTCTATAACATCCAAGCTTTTGATTC<br>AGTCTTTATTCATTCATAAGTTGATTGCATGCATTGCAGAGCACACAAGGTATGTGGTTTCA<br>ATAGTGTGATATGCTTTCAGATTATTTTTTTTCCTTTCATTTTTTGCCTTAA |
| >Gm16_3178995 8 | TTAGGTATAGTAAAAAAAATTTGGCTCGTGCAAGAAGAATATTCCCTTTTGGAACACGAGCG<br>AACAAGCAAGCTCCTTCTTTCCCCGTTGAGTTAAAGCAATTATAACGTGGCTCTCATGCTTT<br>CCATACTTACCCTGCATCCCTCTCCCTCTTCTCCTTTTCCTCCATAATTATAAAA[G/T]TCGC<br>ACCCAAACACCCCCCTTCCTCTGCCACCCAACCAAATCCTCGATCTCGCCGAACAACCCCA<br>CCCTTTCAAAATCCGATTTTCCGATGCCGAAGAAGCGAAAGTCTATCGCCACCAGCCTCGA<br>CGAGGTGGATCGAACCCTCTACGCGTCGTTTTGCACCGCCGCCAACTCCCTCTC |
| >Gm16_3179007 8 | CTTTCCATACTTACCCTGCATCCCTCTCCCTCTTCTCCTTTTCCTCCATAATTATAAAAATCG<br>CACCCAAACACCCCCCTTCCTCTGCCACCCAACCAAATCCTCGATCTCGCCGAACAACCCCC<br>ACCCTTTCAAAATCCGATTTTCCGATGCCGAAGAAGCGAAAGTCTATCGCCACCA[A/G]CCT<br>CGACGAGGTGGATCGAACCCTCTACGCGTCGTTTTGCACCGCCGCCAACTCCCTCTCGCA<br>GCTCTACACGCACTCCATGAACCACCAGAAGCTCTCCTTCAACGCCGGGGAACGACACGC<br>CCTCGTAATATAATAAACCTGCCCCTCCTTTTTTATTTTCTTTCTTTGTTTATTCTC |
| >Gm16_3179187 3 | AATGTTGTAAATGTAGTGTCAAATGTTCCATTTGTGATGCTTAATTCTTTAAAATTATTGATA<br>TTTCTTTGTTTTTGGTTGTAAGTATGTGAAAGTTCATTCCTCTTGCAGAATGAGCTGGATTAT<br>TGTGGAGAAGAACCATCTATGTCACCTAGAGCACCACTGCAACACCAGTCACA[A/G]GCAG<br>CATTGCATGTCCCTAGTTTTCCAGTCACTTCAGCATCTTCTGGTCAAACAATAGCTGCACAA<br>GGACTCCGCTCGGACCACTGTGAAAATCAATCAAAGAATTCTGTGTTTTCAAATGCTTTGTC<br>AAGTCCAGTACGTCGAAGCCTTCAACATTATCAAATTGGTGAGGGAGGATGC |
| >Gm16_3182788 4 | GAAACAACAATCCCCAAAATAGAACACACCCATATCCTTAGCAATTAAACAACACCACACAA<br>GAAGAACTACACATAACTTACAAACTTTTGCTCCATTCAAAACTGATCAACCAATTGCACCA<br>CCTCTTCCACCACAGACGTCAACAAAGACTTCCTAGCATTCACCACATTGCACTT[G/T]CCA<br>CGAATTTCACCTTGATTTCCAGTGAGCACATCCAATTGACTCAACTTTATAGTAGCATCCAC<br>AAACTTCTCAAAGAACAACGTTTGGTTCAACGCAAATGCATTGACCAACCCCTTAGTCCTCT<br>TATCATTGAGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGGTTCATTAGG |
| >Gm16_3182799 1 | ATCAACCAATTGCACCACCTCTTCCACCACAGACGTCAACAAAGACTTCCTAGCATTCACC<br>ACATTGCACTTGCCACGAATTTCACCTTGATTTCCAGTGAGCACATCCAATTGACTCAACTT<br>TATAGTAGCATCCACAAACTTCTCAAAGAACAACGTTTGGTTCAACGCAAATGCAT[T/A]GAC<br>CAACCCCTTAGTCCTCTTATCATTGAGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGG<br>TTCATTAGGTCAAGGTAGTATTTGTTGTCGAACACAGTCGGGGTTCTGATGTCCAAGTTGA<br>CGGTGTTGCCGGAGTTTGCGTCGGGGCAAGTGGATTGTAGTTGCTTGGCTAGGGT |
| >Gm16_3182813 7 | CAAAGAACAACGTTTGGTTCAACGCAAATGCATTGACCAACCCCTTAGTCCTCTTATCATTG<br>AGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGGTTCATTAGGTCAAGGTAGTATTTGT<br>TGTCGAACACAGTCGGGGTTCTGATGTCCAAGTTGACGGTGTTGCCGGAGTTTGCG[A/G]C<br>GGGGCAAGTGGATTGTAGTTGCTTGGCTAGGGTTTTGTCCATGTTGGGGTCGAGAGGGGA<br>GAGCCTGTTGAAGAATGTGCCGCAATGGGCACGACCAAAGGTGTGTGCGCCGGATAAGG<br>CGACAACGTCGGTGACATCAAAGTTTTTGGCGGCGAAAGCGTCAAGGGTCACGCCGGTGG |
| >Gm16_3182973 8 | ATATCACAAAGAAAAGCTTCAAAACTATAGTTAGTAAGAGCAGAGGGTTTTGAGAACCAAAA<br>TAGTAGTGCAAGTAAAGGTAAGAGGGATGAAGAGATTACAAGGAAAACTGAATCACGTGCT<br>GCCAAAACAGTGATATCTGCGCAAGAAACGATCCTTCCACACTCCTTATGGATAAT[G/A]GC<br>TCTGATGTCATCAATGGTTTGCAAGGCCTCAGTTCTGATGCCTCCGTTGGCTGGTTGGTCT<br>CTTTCACTTGGACTCCCATCTAGCAGCAATGATCCATCACATCCCTATACAAATGCAAATTA<br>AGTTAGAGGTAATATCTTTTTTCTATATATATATATGCATGCATATATATTAACC |
| >Gm16_3184075 3 | GTTGGGGGACTCGGCATTGGGACACGTAGCTATCAAATTGTTGTTGAAGTTTGGGTCGATT<br>GGTGGGTCCGTTTCGATGGTTCTGTTCACTAGGGAGGGACAGTGGGCACGACCGTAGGTG<br>TGTGCGCCGGAGAGAGCGACCACATCGGTGGCATCGAAACCTCTATTTCCGAATCCTC[C/T<br>]CAGAAGATCGTCGGTTCGGAAGAATGGTGCCGGTAGGTTGTCCGGCGCGGTGGCGTTTG<br>GTCCTAGGCCGTCTTTTCTTCCCAGTGGCACGTCAAAATCAGGGCCTCCTAACTGTTCAAA |

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| | TTACAAAGAAGTTACCAAAAGGAACAAACGAGAGATCAAGCATTATGTTTAAATGTGTTT |
| >Gm16_3184081 | GTCCGTTTCGATGGTTCTGTTCACTAGGGAGGGACAGTGGGCACGACCGTAGGTGTGTGC<br>GCCGGAGAGAGCGACCACATCGGTGGCATCGAAACCTCTATTTCCGAATCCTCTCAGAAG<br>ATCGTCGGTTCGGAAGAATGGTGCCGGTAGGTTGTCCGGCGCGGTGGCGTTTGGTCCTA[<br>C/T]GCCGTCTTTTCTTCCCAGTGGCACGTCAAAATCAGGGCCTCCTAACTGTTCAAATTACA<br>AAGAAGTTACCAAAAGGAACAAACGAGAGATCAAGCATTATGTTTAAATGTGTTTTTAATCT<br>CATTATAATGTTATAATTTGAGTGAAAATTATCTCTAATTTATATATTATAAATGATTT |
| >Gm16_3184281 | GAGCTACTCCACTGTCCTTCTCGAAGACATCCTCAAGATGCTTCCTTATAATCCTCTCAAGC<br>TTGGGACATGTCAACAAATAGTAATTCCATGATAGTCCAGGGACTAGTTTCCCAGAGGAAA<br>CATGGATTTGAGAAGCCAATACAAGGGAAGAAATCAAGAGCAAAGAGTGAAACAAA[T/C]G<br>ACTAACCCTAGCCATGTTTGATTAATTTGCTATGAGTGTGACTTGAGATAACCAAAACTTAG<br>AAGAGTTATTTATAGATTCAATATTGAGGTAACGTTCTTCGGTTGCTTCCCACTTCCCACCC<br>ACTAGTCTTCTACGTATAATATTTAAAACGTGGCGCAAGCGTTTTTTGAGATTTG |
| >Gm16_3188512 | TGTCTTGGCCGATTTTCTCTCTCACTCTGTACACAGAGACAACCATGCCGTGGCTCCAGGT<br>CTTCTTATTTTCTTAACATTATGTTATTCCAGATGCCTCAAAAAATGGTGTTGCACAAGAGAC<br>AATTCAAAATACTATCCGCAGAGCTAGCAAGGTGATGACGGAGCAAGAGGCTCGA[A/C]GG<br>ATTCTTGGTGTTACAGAGGAAACTCCCTGGGAGGAGATTATCAAGGTTAGTATATCATCTTT<br>GTTGTGGGTATATTACCCATTTGTTTTCAATTTAGCACTTCTAAAGTGGGGAATGCATTTTT<br>GAGGATAAAGCACACTGTTATAGCCTTCAATTGGAAAATCAATAGCTAACATAT |
| >Gm17_7914641 | TTAAATTTTTTTCACTTTGCATGATTTCTGTTTCAATTACTCTATCATTGTCTTGTCTCGTCAT<br>TTTACATAAGGTTATATTTGCTTATCCGAATTAGCTGAGGGGTTAAGCTGGTTTTTGAATTTT<br>GTTATCAGTACACCATTGTCTTTGAAGTGATCATCTCTCTTAAACCATCAGA[A/C]TGACTTG<br>CAGGTATATTTTAGGATGTTAGATGCGTTGTTGGCTGAAGAGAGAATTTCTGATGAGATTTC<br>TAGTCAAACTCAGGTTTGTCAACTATATTTCTTATTTCTGATGCGTTGTTGTATGTTTTTTCA<br>AAATGCATACTCTGATGGATCCTGTAATAGTTGCAGGTTTTATTATGT |
| >Gm18_2151094 | ATTGGCGAAATGGAGGACAGACCGATGATGACTGGGTTACATACCGTGGCTGACATTTTCT<br>GTGTGGGTTGTGGATCAATCGTGGGTTGGAAATATGTAAGATTATGAGTCAGTGCTTCAAA<br>CATCATGGTTTTTTGCCTGTGTTTATCTAGTCTTCAGTTACTCAAGTGGTGCTTTTC[A/C]GG<br>AGACTGCCTATGAAAAAAACCAGAAGTACAAGGAAGGAAAATCAGTGCTTGAACGGTCAGT<br>AGAAATGCTGTGAAAAAAATTGATACTAACATAATCAAAGAGAAGTCATGTTCAGTGTTTAG<br>TATGTAGTGGTTTAGATAAGTTCTATGATTGGGCAGGTACAAAGTGTCAGGTCCT |
| >Gm18_3731008 | TTTATTAAATTTAAATTCAAAAAGATAGATGAATTGAGCAAAAGCAAAAAAGATTCAACAATT<br>TATAAGAATAATCCAATGATTTCTGAAACAACCATTTCAATTCAATTGATAAATTCAGTAAAT<br>TGTTCATTGAAAAAAATAAAATAAAGGATCTTAATGCTAAAAGAAAAGCAGTT[T/A]TAAAAA<br>AATTGAAAAAATTAAAAAGGGGCTTGTAATTTCAGAGACAGATATTCATTCAAACAAAACAA<br>CTTATGATAGTAAAAGGGTAGAGTTCGAAATTTTTTTTATAGATATTATAAAGAAGAAGAAAT<br>GCTCGATTAACTCGAAGATCAAATTCTTTTTTTAAAATTTTTCATGAAA |
| >Gm19_6362210 | CCTTCTTCTCTTCCTCCCAACCATCAGATACCCAACTTGGCTGCTTCATATTCTCCACCTCA<br>GCTATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATAT<br>ATATATAAATCAATTGAACCAAAACCAATCTCACAATAAAAATCACAATCCT[A/C]ACCTTCAA<br>CTTTTCCCTCAGTAAATCAGCCTCCTGCAATTTCTCCTTTATTTTATTCTCACAATCTGATAT<br>TGCATTTTCGAACGCAGCATTCTCTTCCTTCAACGTCACCTCTCTAAGTTGGGCCTGCACC<br>ACAATTGCATTTAAGTGTCCCAAGTTCCAATTGTATGAATTGAATCCC |
| >Gm20_2831907 | TTAGTACATAGCACTCTACTTGTCTATGACATGATGATGAACACAAAAGATATTACACGACA<br>TGCTGGAAAATCTTGGTTTTGAAATATAATTCTCTTTATTTCTGTTATTTGACTGCTAGGAGA<br>CTATATTGCCTGCTAATACTATGAGTGCAGTTGACTTGTGAACTTTTACTCTTT[A/C]AGCGA<br>CTGCATTGTGAATTAGCTGATGCCATTATACGCCAAATACCCGATTGTGGTCACCTTCCTCA<br>TGTTGAAAGACCAGATTCTGTTGTCAAATTCATTGTTGAATTTGTTCAGAGCAAAACCAACA<br>CAGAAAAGGAATGTGTTTCACCCGTATGACAAGGAAGCATGCTCTGTCCAT |
| >Gm20_46302957 | AGACATTATCTGGGTCAATTCCTTCCTGATTATTTTTGAGCTTTGTAAACTCCAAGTTGTCCT<br>TGAACCTCTCAACGTCCTCATTCAAACCCCTCCAACCGATTCCAATATTCAACGCGGCTCTT<br>TGTTCTCCTTGGACAGCCTCCACAATCCTCCTCTCCGCATAAGTAGTGAATCCC[T/A]AAAA<br>CCAAAATCAAGAACAACAATCTCATGATCGCCATCAAATCAAAACGCACTAGTAGGAGAAT<br>ATTACCTCATTCAACCAGAAATGTTCATTGGTCTTGTTAGTGATCAAATTCCCAGTCCAACT<br>GTGAGCAAGCTCGTGAGCCACAACCTGTGCACCGGTGGCATCCCCCTTAATAA |

**Supplemental Table S4**. SNPs identified by Method 2 on the four-library comparison

This table contains 469 SNPs identified using Method 2 on the four-library RNA-Seq comparison between the Clark/IsoClark 19-day root and leaf experimental data. The file contains a unique SNP identifier that includes the genomic location. The sequence surrounding each SNP based on the soybean Glyma1.01 genome assembly is also provided.

| SNP | [Clark/IsoClark] |
|---|---|
| >Gm01_1840408 | ACCTGTGCCAAACCTGATTGCATTCCAAATATCTGGCTCTTTCTCCCGTGAGAGGTCAATGC<br>ATTTGGCATAGCAACCACCTTCAATGTTGGAGACACCATTGTCACCCCAACAGTGTTCATCA<br>TCTCCGATTAGATACCTATTGTGATCGGTCGAAAGAGTGGTCTTTCCGGTACCTA[T/C]AAC<br>AAACAATAAAAAAGAGAACAAAAGGATCCATTAGGATTGAATATAAATGGAGACACAAGTAG<br>CCATAACACAAAACATCCATGTGTAAGCATGCAACATAGTTGAGATAATTAACAAGCAGTGG<br>AGTATTGAGTATGGCTGAGTAATAAGAGGGGAAGGAACATATGGTAGGGTAGG |
| >Gm01_4870875 | TGTGCTTTGCATAAGGCAGAAGTATATTAGGTATAAGCCTTTTATGGCTGAGGTTAAGGACT<br>ATGCTTGCCATAGGGCTGGGGAGCCTGCTGCTAAGAAATCTAAGGTTTTGAAGAGGGAGC<br>CCTATGCTTCCAAGAGGTGTGGATGTGGGTTTAGGATTAGGGCAATTGTGCCGATTG[T/C]A<br>AATTATAATGAGAAGGATAAGAGTTTTGTGTATCAGGAGGAAGGGGTGGCGGTTTTCAAGC<br>TGTATGCTGTGCACTCCGGGCACGAGCCGGGGCCGTTGGACGGGAATGCAAGGATTATGC<br>ATAGGGTTGTTGGGCATAAGGGGGGTGGGTTTTTGATGGATCAGGAGAATAATGTTTA |
| >Gm01_53218289 | GGTCTTAACATGGAGAGGGAAGTAAAAATTAAGTGAGAAATAATTTTAGCTTCCTCCCTTAT<br>TTTTTTCTTCCTCTCAAGTTACCGGTTCTAGTCATGAGTTGGACCAATAAGGCCCGCCCATT<br>TACTTTGGATATATCTAAGCCCGCAACCCTTACCGTAAAACCCTAGCAATACTAA[G/C]AGCA<br>AAAACTCATTCGCGATCTCGTTCTGTACGTGCAGCCGCAGCAAGTGATCGAAGCGAAAAGA<br>GAGAAATTCATCGTCGCAGTAATCATGGGTAAGTTGATTGAAAATTAGGTATGGTAGTGTTT<br>CCCTTTCTTGCGCACGACGAATAACAACATATAGAACGCAATTTGCAGGTAAG |
| >Gm01_53669556 | AAAGGAAACGCAACTGGCACAGTAACTCTCAATCGGTTACCTCTTTGAAGTCGAAGCGCAA<br>GAGGTAGACATATTATTTTGTCCCTAACTATGTGGAACAGCTAGCAAGCAACACAACTATAT<br>ATAAGGACATGCTTAATATTGCTGATAGAGTGTAGTCCCACTAAGGATGCAAAAGA[T/G]GG<br>TAGATGCATGTGGGTTACTGTAATATTGTAAGATAGCTGAAACAAATTATAGACTGGCTGTA<br>AATTTGTGGAATTTAACGTATGCAAACTTTTCTTTTAGGTGTGGTTAAGTTGCCTCTCTTTTT<br>AACTATCTTTGTAAATTGTTTGCTACTTTTCTGACCGGTGGGAGAATTATTAC |
| >Gm01_55645316 | GCCGATTAGTCGCCATCACTGGCCGTGTTCAGAAGGTCAGGGACGAATTGGAGCACCTGC<br>TCGACGACGACGATGATATGGCTGAGATGTATCTCTCTGAAAAGCTAGCCGAACAAGATGA<br>CTTGGAGAAGGCGGAGGATACCTCTTCTGCCGACGATGTTGATGATCACATTGACAGG[A/C<br>]ACCTCTTCCTTCCCTTTTGACTCTCCTTCTTTCCCTTCTAACCTCTATATGTAATTCATCCTT<br>CTATTTTTTTTTTTTTTATTTAGGACCGCTCCTGAAATATCGTTGGACAATGTTGTTGGTAGG<br>GACAGCCATGGAACTCGCGATAGCGCCACCTACAGCGCCGTCACCAAGCAACTT |
| >Gm02_5985910 | ATTGAAGGAACTGGAGTATTTGTGGACAGAGACGGTGCAGGAAAGCACATTCAAGCCGGA<br>GCAAAGAAGATTTTGATCACAGCTCCTGGCAAGGGAGATATTCCTACCTACGTGGTTGGTG<br>TCAATGCTGGTATTTACGACCCAGATGAACCCATCATCAGCAATGCTTCTAGTACCCT[T/C]C<br>GTCAAGGTCCTTGATCAGAAATTCGGTAATTCATCTTATCCCTACATTTTTTTAATCAAACTT<br>ATTACCCATCTCTACATTCATGTGTCATTATTTTATTAAGGAAACTTTGGTCTCAAATTTGCG<br>TGCAAAATTATTATATGGTCCATATTCTCACTGAGCCACCACATGACAGGTAT |
| >Gm02_5994292 | AACAGTCTCAATTACTTTATATATCATATCATATTAGCATAGCATTAGCACACATATATAGTT<br>ACATACCAGTGTACTTATCAAGATGAAGCTGAATCTCAGAACCACCATTGAGGTATTTGATG<br>TGATCAAAGGCCCAAGTAGGCACATAGTTTCTGCCAAATGGCACATCAATTGGT[T/C]TTCTT<br>GGGTTGGCGGCGAAGGAAGCAGAAGCAAGTGATAACAAAATCAGACAAGTCCACAAAGAG<br>GAACCCATTTTTTCTTCTTTGTGTTTCAACTTGTGTTGTGATACGTCCTTCTTGTGCATTCCA<br>ACGGGTATATATAGGCACAAAGACCCTGCTTGGACCTCTTTAATGTAAGGAC |
| >Gm02_6754692 | AGCCCAACTCACTTGATAGAATCCAACTGAGTTCCACATTAGACTAACATTCATTCCAACAA<br>TAGAGAAGTTAGCAAAGAGAACAAATTTTAGAAGATCTGGCAAGGGTAAATGAGAAGGCTG<br>GACATATCCCAGCATCCTTAGTACAACTGTCATCAAAGTTGTGGTAGCAAAGTGCA[G/C]GC |

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|---|---|
| | CTGTTAATGTTGTGGCTGCAAGCAGTAATAGACAAATCACATTAAAAGATAAAAAATTAACA<br>TCAGAGCATGATCGTATAGGGAATTTGCCAATAACAGAAACGTCCATTAAGAAATTGAATAG<br>GGAATTTACCAAAACTGAAGCCATAAGAGGCCATCAAAGCTTTGTTTACAATGA |
| >Gm02_16872184 | CTTTTTTGGAGGACTTGAAGGATCACATTGACGAGTTTATTAATGCTTCTATGGATGAACAT<br>AAGACTTGCTTCAAGAAAACAGTTCAGAAGGTTATTTAGTGATGTACCTAAACTTTCTTGTTA<br>GGACAATTTGTGTGCATCCCTTTGTTAACCGATGTAGTGCGGTGTTTGGTTGGT[T/G]TCAG<br>ATGTTCGGAATGTCCAAGGCTGTTGCAGAGAGGGACACCAATGCTGCCAAAGAAGTTGAG<br>AGTTCTCTGCCTCTTCAGACAACTTTGCAAGACTAGTATCATGCTTGCTCTCAAGAAAAATA<br>ATGTTTGTTTTCTAGAAGCTCTTTTGGAGGATGTTGATAAAAATAAGTGAGTGA |
| >Gm02_16872185 | TTTTTTGGAGGACTTGAAGGATCACATTGACGAGTTTATTAATGCTTCTATGGATGAACATA<br>AGACTTGCTTCAAGAAAACAGTTCAGAAGGTTATTTAGTGATGTACCTAAACTTTCTTGTTA<br>GGACAATTTGTGTGCATCCCTTTGTTAACCGATGTAGTGCGGTGTTTGGTTGGTT[A/C]CAG<br>ATGTTCGGAATGTCCAAGGCTGTTGCAGAGAGGGACACCAATGCTGCCAAAGAAGTTGAG<br>AGTTCTCTGCCTCTTCAGACAACTTTGCAAGACTAGTATCATGCTTGCTCTCAAGAAAAATA<br>ATGTTTGTTTTCTAGAAGCTCTTTTGGAGGATGTTGATAAAAATAAGTGAGTGAT |
| >Gm02_42632633 | GTTGGCATGGCCATCCACCAAGGTCACTTCTATGTCCGCCACGGCCCATGATGAAGGGTT<br>CCGTGCCATGTTGTTATTGGCCTCGCACGTGCCAGGGTAGCCTTTGCTGCTGCTGCTGCTG<br>CTGCTCTGTGTGGCACGTGTCGAGTACTGGGGGAACATGAAGAACTCAGAAAAGGGTG[G/<br>T]TGAGTCAGAGAAGCCACTACCCTCCTTTGTTCTCTTCTTCTGGCCCTTCATGCACTGCAG<br>AAGCTGCTCCAGCTCCTTCACGAAGTTAATGGTGCCACCAATAATAGAGGCTTGATCACCC<br>TGTTTTTTTTTTTTTTTTTAATAACCGCACATGTGGCACGGTTAGTTGGCTAGCTAGTA |
| >Gm02_42829778 | CAGCACCGACGGCGGACTGTGCCTCACGTCGAGCGCGTGCCTCCCACTCGCGATCTCGA<br>GCAGCAAAACTCCGAAACTGAAGACATCGCTCTTGGAACTTAGATCTCCCGGCGCAAGATA<br>GCACGGGTCGAGGTATCCTAACGTCCCCGCCGGTGGCACGCGAGAATCCGCCACGTGTC[<br>A/G]CCTCACCGCGAGCCCGAAGTCACCGAGTCTAGCGTTCCACTTTTCGTCGATTAACACA<br>TTGGACGATTTTATGTCCCTGTGAATAACTGGCGGTTCGGAAGAGTGTAAAAGGCGAACCG<br>CTTTCGCGACCTGAACCGCAAACCGGACTCGCGCGGTCCAGCTTGGGGGTCGAACCGGTT<br>T |
| >Gm02_42830291 | TTCGATTTCGTTTGAGGTTTTGGGTTTGGTTATTTTGACGGCGGCGACGAGAGCGCCGCCG<br>TGGAAGGCGGCCTTGTAGACTGTGCCGTGGCTGCCTTTACCTAGGAAGGTGTCGGCAGAG<br>AAGTTGTTGGTGGCGTCGAGGATGTCGGAGTAGGCGAAGTGTCGCACGGGCTGGGCCT[G/<br>A]GGCTGGGCTTTTGGGCTTTTTCTTCTTCTTGAGGGAGTGAGGGTCGCATGTGGCTATTGC<br>GGACTCGGCGTTGCAAGTGAGGTAGGGCATTGTGAGTAATGATGGAGAAAACTAGAGAAG<br>AGAGAGCATAACTAACTCTGAACACTGAACAGATACATTTTGATTTAAAGGGAAATCAAT |
| >Gm03_2000300 | ATGTGGCTATTCTGTAGTTTATTATGGATACTTGCATGTGGCTGGTTATGTTTGAAGGCCTT<br>GAAACACTTATTTTAGAGTTAAGAAGACTGTAATCGTGGAAATGTTTAGCTGTTAATGTTTAC<br>ATGAACTAAAAAGAGGTCCAGTTTCTCTGGTTGCAAAAATGATAGATTGAAGAT[T/C]GTAAT<br>GCCTATATTTTTTATCACGGTCCCTTCCTGGTTCTTTTGTTCACCTCAAGATAAAAGGAAAG<br>GATGATGTTTATGGGTGAGAATCATTGGTTTCGTGATTCAATGGTAATAAATCTAATAAGCA<br>AAGTGGTATCGAGTTTTTAGTATATTTAGCATAATTACCTAAACTAGATGA |
| >Gm03_9117708 | GCTGGCACGTTCATCTTTCCCTTCTTTCTCTTATGTTTTTTTCATTTAAATTTTTCGGTCTCAC<br>TCCTCATTCACCTTTTCAACAACCCTTTTGTTTTTTATGGCAGCTCTTAGAAGGTTAGGGGT<br>GCAAGGCGTGGAGATTCGAAAGCCAGAGCAGCTTAACACAATTAGTTCCCTCA[T/C]TATCC<br>CTGGTGGAGAAAGCACCACCATGGCTAAGCTCGCCGAGTATCACAACCTGGTCGCTTTCTT<br>TACCTCTTTTGTTTTTATTTTTATATCTATTCATATTTGCGTAGACTGAAAAATATTTGCCTTTT<br>ATCGGAAAGGAATATTTAAAGGGTTTATTTTGGTTTGAGTGTGTGGATT |
| >Gm03_35096230 | GTTTGTTGATCGACTTTATTAGTGATAGTTTTCAATGCTAACTCGAGGCTCCATTACTTTCAT<br>TTTATCATGTTCTGTTACTAAATTGATTATGTAATTGAGAATGGATAAAAACAAATATTGATTA<br>TACAAAATAACAATGGAGGAATGGTGATTATAGAAAAATGCAAACACAAACT[G/C]ACCTCG<br>ATAATGACATGCATGTCAAATTCTTTTGTGTTAAGTCCAATGCCTTCGTAGAAAGCTGTACG<br>TTGGCAATCATTGAGATACATTGTGACATAAACCTGCAGGACAAATTTGACAACCAAGTTTT<br>AAGTAACAGTTAAGAAGGATTAAAACAGTAACTTTATGTTGATAGATGTG |
| >Gm03_36398914 | AATGATATTTTAAGCATCTTAGGCTTTAGAATCATGTTTAAAGACTACTGTAGTCAAGTAAAG<br>CTAATAACTCAAAATACATACATATTCCAGTGACAGAAAACAAGGATTATGTATGTAGTGTC<br>CTGCCAAACCAGTTTCCAGTAAAAACAAGCTGCATGTTTCTTATTTCAAAAGCT[T/G]ACAGG<br>AAGGTGATAATCGTGCAGTACACAGCATACAACTTACATAAAAGTTTCTTATGGCATAGAAA<br>ACATGTAGTCCTCCTATTCGTACACAGTCAAGTTTAACTAAACAAACAAAGAAACTCAAAGA |

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|---|---|
| | TGAGAGTATAGGAAATACAAATACAATACTAGAGTCATTCTGTACAAAAGG |
| >Gm03_36398969 | AAGTAAAGCTAATAACTCAAAATACATACATATTCCAGTGACAGAAAACAAGGATTATGTAT<br>GTAGTGTCCTGCCAAACCAGTTTCCAGTAAAAACAAGCTGCATGTTTCTTATTTCAAAAGCT<br>CACAGGAAGGTGATAATCGTGCAGTACACAGCATACAACTTACATAAAAGTTTCT[A/C]ATG<br>GCATAGAAAACATGTAGTCCTCCTATTCGTACACAGTCAAGTTTAACTAAACAAACAAAGAA<br>ACTCAAAGATGAGAGTATAGGAAATACAAATACAATACTAGAGTCATTCTGTACAAAAGGTT<br>TGGGTTCATCATGTAATAAGACAATACACATACTAAGACACATAATTCCTTCC |
| >Gm03_36399038 | CCTGCCAAACCAGTTTCCAGTAAAAACAAGCTGCATGTTTCTTATTTCAAAAGCTCACAGGA<br>AGGTGATAATCGTGCAGTACACAGCATACAACTTACATAAAAGTTTCTTATGGCATAGAAAA<br>CATGTAGTCCTCCTATTCGTACACAGTCAAGTTTAACTAAACAAACAAAGAAACT[G/T]AAAG<br>ATGAGAGTATAGGAAATACAAATACAATACTAGAGTCATTCTGTACAAAAGGTTTGGGTTCA<br>TCATGTAATAAGACAATACACATACTAAGACACATAATTCCTTCCCGCCCATCTCTCCTCGT<br>ACTTTCCAAATGAGTAGGTAGTTGAAGGCATCCCAGTCAAGTGAAAGGGGTC |
| >Gm03_36416992 | GATGGAAGGTTCTTGCTTTTGTTTGTATATATACATACTATTATTGCTAGGAAATTGAAGACC<br>TAAGATACAATAGAGATGGCAAAGCTATTTTTGAAACAGGCAAAGCAATACGCAGATGCAA<br>GACCAAGCTATCCTCCACAACTCTTCCAATTCATTGCTTCCAAGACTCCCTCTCA[A/G]AACC<br>TCGCTTGGGACGTCGGCACTGGGAGCGGCCAAGCTGCCAAATCTGTAAATTTTCTTTCTTC<br>TCCTTCTCTTTCTTAATTCTTTCACCTATATATATATATATATATATTTCTTGGTCAATTTCC<br>ACAAGCACTCTCACATATTTTACACGGGCGTGAGATCCTGCTTAACCTAG |
| >Gm03_36418097 | AAATGGGTTGATGACAATTATAGAAGCATTGATTTTCCATTTGAGCCCGTGGATGGAGCTGA<br>TCACACAGGACCCTTTGAGTTTGTGACGGAAACAATGATGGATTTGGATGATTTCTTGACCT<br>ACATAAGATCATGGTCAGCATATCAGACGGCTAAGGAGAAAGGAGTGGAGCTTCT[G/A]GC<br>GGAGGATGTGGTTGAAAAATTCAAGCTTGCTTGGGGTGAAGATGCTAAAAAAGTTGTCAAG<br>TTTCCAATTTATTTGAGAATTGGAAGAACAGGGGATTCCTAAAGACATATGCAAATGGTTGC<br>TTTTACTGTGTGGGAGATGTGACGAGTACCAACTTTTATGAGTTTATCCATTGAT |
| >Gm03_36460374 | GACATTGCAAATTAAAATTTTCCATACAAGTTTCCTCAATCCTAATATAGTGATAGTGATAAA<br>TAGAACTAAGACAACAAATTAGTACTAGGCTCTGTCAATCTTCATAGGCCAATACTTTTACC<br>ACTCTTTAATAACTTATGACCCGATATTTGAAGGTGAGGATAACAATTGTAACA[G/A]GAAAA<br>TTACAGGAAATACGGATTTTATTACATGCACGTAAGAAACACATCAAATTTCCACTCTCAAG<br>AATCCAAAGAAAAGATAACAATGCATGCTCTCAAATCCTCAACATGCTAACTAACATCTTGC<br>CAATGCAACTTCCTAAGGATGAATATTTAGACAAAAAAAAACATTAAAGAG |
| >Gm03_36468024 | CCCTTACATATTTTACCATAATAGTTTAGTATGAAGGTCCTTTTATTTTTATGCTGAATTAATC<br>CACACCAACTAACCACAACCGCGGTTCCCACTTCCAGAATCCCCTCTTCTGTTCTTGGATG<br>GGTTTCCTTCATCACCCTCTTCCCTGAAGCCACATAACCCCATGGCAATGGCAC[T/C]AGAC<br>GCAGCACTCTGGATCGTGAAGATGACATGGATTGCTCTCAGTGGCTGGATTTCTTCTTGTTT<br>AACTGTCGCTGACGAATTCGCCTCTTCTCTACGCTCTGGCGATATTGGCCCCTTTCATGTG<br>GGTTGATCCATTTACGCTCTCTATTTCCTCCAAGATGGGTACTTTACTTACTG |
| >Gm03_36468052 | GTATGAAGGTCCTTTTATTTTTATGCTGAATTAATCCACACCAACTAACCACAACCGCGGTT<br>CCCACTTCCAGAATCCCCTCTTCTGTTCTTGGATGGGTTTCCTTCATCACCCTCTTCCCTGA<br>AGCCACATAACCCCATGGCAATGGCACTAGACGCAGCACTCTGGATCGTGAAGAT[C/T]AC<br>ATGGATTGCTCTCAGTGGCTGGATTTCTTCTTGTTTAACTGTCGCTGACGAATTCGCCTCTT<br>CTCTACGCTCTGGCGATATTGGCCCCTTTCATGTGGGTTGATCCATTTACGCTCTCTATTTC<br>CTCCAAGATGGGTACTTTACTTACTGGGTATGCAGCAAGTTTTGTAATTTTCGA |
| >Gm03_36553944 | TCTTCACGACTCATATGATACTCGTGACAAAAGACATACTCAGCAACAACTTGAGGAACATT<br>AACAACTGGCTCCTTAATTTTGGTGCACCAGCAAGCACTGCAACAACCTTTCTGATCTTTGC<br>CATGCTCTGTGAGCAAAGGCAGTGGTCGTGCTCACCCATGTCTAGATGCACTATG[G/A]GC<br>ATCAGTGACATCAATCGCTCTTTGATGTGAACTCTCGTCCACTCTACAACCACCAATTATCA<br>TAGGTGAAGTCATTTTGTACATGAAAGTTAAAAAATAAGATGTTAGGCCGATTTTATTTAATG<br>TAATTGTGTGTAATAAAATACATATAAATGCAAATACATTTAATATACTTTTT |
| >Gm03_36559857 | TGTTTCTGCAGGTGGAAAAAACTCATAGATTAGAGTCCGAAATTCTAACTGAGAAGCTTTTG<br>TCAATATATGAGAAGCAAAGGATTTTCTAATCAAACGATCTTAAGTGCTCTGATGTTAAATTT<br>GACACCTAAAAGAGTCTTCACATATTTGTCATGCATGAATGGCAAGTTCGGAAA[G/A]TAGA<br>ATGGAGTAATCACATCACATGCCGCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGC<br>CGGCAGGAAGGTGCATGGATTTTAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAA<br>TGTTACAATCAGCCTCACGTAGCAAAGTGTGACACCCTCTTTTCTCACAAATA |
| >Gm03_36559926 | ATGAGAAGCAAAGGATTTTCTAATCAAACGATCTTAAGTGCTCTGATGTTAAATTTGACACC<br>TAAAAGAGTCTTCACATATTTGTCATGCATGAATGGCAAGTTCGGAAATTAGAATGGAGTAA |

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|---|---|
| | TCACATCACATGCCGCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGCCG[A/T]CAG<br>GAAGGTGCATGGATTTTAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAATGTTACA<br>ATCAGCCTCACGTAGCAAAGTGTGACACCCTCTTTTCTCACAAATATATGTACTAATAATGA<br>AAGGAATAGAAAGTTAGAATTAATGAAAAGTTTTAAAACACATTTAAATAAAA |
| >Gm03_36560002 | CATATTTGTCATGCATGAATGGCAAGTTCGGAAATTAGAATGGAGTAATCACATCACATGCC<br>GCTTCTATATACATATGATTTGGTAAAAAAGCAAGTGGCCGGCAGGAAGGTGCATGGATTT<br>TAGGAGGAGTTAAAGAAAAGAATATTGTATAAACATAAATGTTACAATCAGCCTCA[A/G]GTA<br>GCAAAGTGTGACACCCTCTTTTCTCACAAATATATGTACTAATAATGAAAGGAATAGAAAGT<br>TAGAATTAATGAAAAGTTTTAAAACACATTTAAATAAAAGCATTTCAAAAAGGATAAAAGGTT<br>TACATTCGTTTTTCTAGCATTCTAATAAAACTTATTTAAATAAATAATAAAA |
| >Gm03_36612938 | GGAGGATCCGGATCCGAAAGAAGGCGGGTCGGAGCGTGAGACTAAAGATGGTTCCTTTTT<br>ACGAAAGAAGCGTTTGGGGCTTAGTTTGAGGTTTTTGGGGTTGATGGTGCTAATGAGCTTC<br>ATTGTTTTTGGAAAAGAAGAGAAGAGGAGAGTGGGGGTTGAGGGGAAAGAGAGTGAAA[C/<br>A]GTGGAGGGATTAAATGGGGGCACCATGGAAGGTCCATTTCTCACTCCTTGCTACCTTCCA<br>CGAAGTTTCCTATACATCATGGACTCATTATAAAAGAAGGTGGCTATTTTTATTTTTTATTTTT<br>TTCTTTATTAATTAATATGTCATAATAGTGTATTGTATTGGTTTGGAATGCCTCAT |
| >Gm03_36634361 | CAATATGGAGGGCAATAGGAACAAAATATTAAAATGTCACTGGAAAAGAACTGATACTTGAC<br>ACTAACTGTCAACAATGCTTTGATCCATACCCGAATCTGTGCCCGAATGATGATCAATGGAA<br>TTGTAATCTGGCATGTCAGTTAAGGACCTGGCTGGCATGGATTCTTCATCATCTC[T/C]GTGT<br>TCAGATGCAGAGCTAGCAGCATCTATCTCCTTCCCTGGACACTCATCTTGGACACATTCAG<br>CAACTTCAATGTTGTAATTTTCAAAACCATGACTGCTACTACTTAAGGGTGACAAGTCTTCTT<br>TCTTGACAACATTAAACACAATCCCATTATGGATCCTTTCAGGCTGCAGAAG |
| >Gm03_36808892 | TGAGTCCCAAGGCTTCACTTCATTTCCCACAGTAATGTACCTGAATCTGACATTCCAAAAGT<br>TTCTGACATTGTCTTGCACCCATCTGTTTGCGTTGTCTTGGCTGGAAGCTACATATTGGAGG<br>TCGATGTTAGGAAGATCTAGCAGCAACTCAATGTTGGAATCTCTCAGAGCTTGGA[G/A]GAC<br>TTCATGGTTTCGATCATAGATTCTCATCCTTTGGAAGCCGTACTGTTTAAAAAGGGAAACTA<br>CTTCTTGTGGCGATGGCAGATTGTTGCCAACTCTTCCATAGCATACACCAGATTGTGCACCT<br>GCACCAGATGGAACAAAATGGTGAATTGATAATACTACTTCTAAGATATCAAG |
| >Gm03_36952394 | AAAAGAAATAAAAAAAAATAAGATCTGTTTTTTTTTTTTTTTGAGAAAGATCATTTTTTATTATT<br>ATTGTTTTGAATTTTGAGAATTATGTAATGATGAGAGGTTGATGTTGTGAAAAAAAAAAATGG<br>AAATCCAGGGAGGAGGCGGTGGTGGAGGTGGCAAGAGTGGAAAGACAATGT[T/G]CACCA<br>ACAGCAAGGAGAATTTGTTCATAGTTTTTCTTGTTACACTTTGGTACTCTTCAAACATTGGTG<br>TGATCCTTCTGAACAAGTATCTGCTCTCAAACTATGGATTCAAGTTCCCAATCTTCCTCACA<br>ATGTGCCACATGTCGGCCTGTGCTGTCCTCAGCTATGTCTCCATTGTGTT |
| >Gm03_36960275 | GTTAGGCAATTCATGTCAATGTTCATCTACTTGTTTTTCGAAAGGTTAGTGTCCTAAAAACCA<br>AAATACGAAACCAAAAAATGTTCATGACCCAAAAACAAAAGAAAGGGAAAACGAAACCATAC<br>TCTTCTAATATTTTATGCCAGCTCCGGACCAGATGGCAGTGCCTCATAACCATC[C/T]CGGT<br>GCTGCTTACTAGCATCTCTTTCAACTGGGATGCACTTGAGGATAGCAGCTATAGGCATGCT<br>AAATGCTCCGATTACCACACTTAGTAACCAGAATTGCCAGTTTAGAGGCACAGTGCTGGCA<br>AACGTTCCAAGGAATTCAACTATCACCACTTGAAATGCAGCGGTGGCGAAAATT |
| >Gm03_36996777 | CATATATTTGCATTCACTTAACGTAGTCTTGATACCCCAATCCACTAACAATATTTTTTTTATA<br>TTATTATTATTATCATCATCATCAAAATGCCTGGCTTGTAAATGAAATGGATTTGGACCAAAC<br>TATCTAGTGACGTGCGCAATGAAATCATCCAGTTCCGCGCGAGAAACACCCC[A/G]TTCATC<br>CTTGGACCTGCGAATAGCATTTTTCAGGTTCATTGCCCTTTGTCTCATCTCATCACCTTCTTT<br>TGTTGCCATCAATCTCCTCACGGCATTCTCAACATCTGATGATGTCACCAACTCGTCCCTGT<br>GGTCCCAGTCCTTCACAACCACCCCAACTCTGAGCACTTCTGTTACCAA |
| >Gm03_36997184 | GCACCCCCATTGTCATGCTCTCCATGCAAGAGTTCCATCCACAGTGACTCATAAACCCACC<br>AGTTGAACTGTGACTTAGAATCTCCAATTGGGGTGCCCAGTCTCTCACAACCAACCCCGTG<br>CCTTTCACTCTCTCTTCAAACCCCTTTGGAAGCTCAGCAGTTCTCACGCCATCCTCA[C/T]G<br>GAACACATCTCCCTTGTCAGCATCCCTCACCACCCATATGAACTTTTGCTTGCTTTTTTCCA<br>ACCCGTTTGCAACCTCCTTGATTTGCTCCTCAGAGAAGCATGTTGTTGTCCCAAACGACACA<br>TACAAAACTGACCCTGCTTCTTGCTTGTCAAGCCACTCAACACTGAAGTGCCTTG |
| >Gm03_36997185 | CACCCCCATTGTCATGCTCTCCATGCAAGAGTTCCATCCACAGTGACTCATAAACCCACCA<br>GTTGAACTGTGACTTAGAATCTCCAATTGGGGTGCCCAGTCTCTCACAACCAACCCCGTGC<br>CTTTCACTCTCTCTTCAAACCCCTTTGGAAGCTCAGCAGTTCTCACGCCATCCTCAT[G/A]GA<br>ACACATCTCCCTTGTCAGCATCCCTCACCACCCATATGAACTTTTGCTTGCTTTTTTCCAAC<br>CCGTTTGCAACCTCCTTGATTTGCTCCTCAGAGAAGCATGTTGTTGTCCCAAACGACACATA |

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| | CAAAACTGACCCTGCTTCTTGCTTGTCAAGCCACTCAACACTGAAGTGCCTTGT |
| >Gm03_37024877 | TTTCTCATTGTTTTTAAAAGGGTGTTCACTTGTCCCTTTTCCATGAATTGCAGTTTATGAGCC<br>ACAAGTGCAAATGGGAATGAAATGAAGAATGGGGTTTAGAGTTAGTCAAGACAAGTGGTGT<br>GGTGTCCTATGTTATGACTGCACACATGTGAAGTGAAGTAGAGACTATTCAGTCC[G/C]CAG<br>CAGCTGTTTCTAGTGTGTGTGTCATTGCATTCCTCATCCTTTTCCTCTTTTTTCACGCCTTAA<br>TTTCTTTCTCTCTTTCTCCCTCTTCCTCTCTGGAATTTGGAGCATCAGCCAGCACTCTATGG<br>ATTCTCTGATTGGTAATTGGCCATCCTACGATCCTCACAACTTCAGTCAGCT |
| >Gm03_37024958 | GAAATGAAGAATGGGGTTTAGAGTTAGTCAAGACAAGTGGTGTGGTGTCCTATGTTATGAC<br>TGCACACATGTGAAGTGAAGTAGAGACTATTCAGTCCACAGCAGCTGTTTCTAGTGTGTGT<br>GTCATTGCATTCCTCATCCTTTTCCTCTTTTTTCACGCCTTAATTTCTTTCTCTCTT[G/T]CTC<br>CCTCTTCCTCTCTGGAATTTGGAGCATCAGCCAGCACTCTATGGATTCTCTGATTGGTAATT<br>GGCCATCCTACGATCCTCACAACTTCAGTCAGCTTCGACCTTCCGATCCTTCTAGTTCTTCT<br>GTAAGTTGCTGTTGTTGTTGTCTATGAAATTGATAATCCTGGTAATAATTACT |
| >Gm03_37027198 | GTTAAGCAACCTTTTTGTAGAAGGGTTCTTCTATAATAACTCTAGTTCATTTTCTCCAATGTT<br>ATTTTTCAAGTTGCTTAACTTTTGTTTTTTTAATTTCGGTAGACTCAATGGTGTTTTCTAATTC<br>AAAGTTTGCTAACCTGTTGAAGTTCCAACAGTGATAAGTACTGAAGCCAAAA[G/A]CATCCTC<br>ATGAGACATATTTATCAGCATTCTGAGCAGAAGGTTAGTGACTTGATGGTTAAAGAGCATGT<br>GTTTTGGTGCAGTTAGGTATGCATATGCTTGATGCTCATAACCTTTTGTGTTTTTCAGTTGAA<br>TCCAAAAAGAGCTGCATCTGATAACCTTCTTTTACCAGAGCATGGATG |
| >Gm03_37144398 | TCCTTAAAAAGTTGACACCAAAACTGAAAAAGCATTTATCTATGTTGCAAATGTTTAGGGCTT<br>TCGTAAAATTGCAACAAGCAGATGGGAGTTTTTCAATGACAGGTTCAAGAAAGGTGAAAGA<br>GAACTTCTACATGAGATTCGGCGAAGAAAAGCTTGGACCAGCAAGCAACAACCAA[A/T]GG<br>CACCAAACCAAGCAACACTCCAAGACTCTGATGAAGATCAAAGGTCCTCATCAATCTCATCA<br>TCTTCTGGTTACACTACCCTTGTGGATGAAAACAAGCGACTCAAGAAGGAGAATGGGGTGT<br>TGAACTCTGAGCTCACAAGTATGAAAAGGAAGTGCAAGGAACTTCTTGATTTGGT |
| >Gm03_37165409 | AAGATTCACACGTACCATCTCGAAACAGTTGTTCTGATAACTGTTCCTGAGAAGCTCCATCA<br>CAGACAGGTGTACCAGAGATTAGTGTTTTTACTCTTTCTTCATTGTCAAGCCAGCGCCCAAT<br>TAAGCCTATCATTTCTCGTGTCAAGCTAATCTCCGCAATGGATGTATTTCCTGAT[G/A]TGAC<br>GGAGTCAGTGCCCCCAATGCAAATTTCAAGGTCATTAAGTAAGCTTCTAGGATGAGAAGGG<br>ACATCAAGAAGTCTTTCTTGAATAGCTTGGCAGAGGTTTTGCAAGTCTGCAGAACTCACTTC<br>AGTAGGTTTGACCTGGAAACAGGGAAACAGAGAATTACATATTTGAAGATGCT |
| >Gm03_37300009 | GCTCTCATCGATGCCCAAACAAACCCTAGTTGCGAATTTAGAAAGGAACTCCTCGCTGGCG<br>CTCACCATTTCCCTCGCGTGCTGCCACGTGGCGTCGAAGGCGATGAGGACGAGGCCAGAG<br>GAGGGGCGGAGGGAGGAGATGTGGAGGGCGGAGGCGGAGGAGGGGAAGAGGTAGAGG<br>G[C/T]GGGGGGAGAGCGGTCGAGGAGGGGGGAGAGGCCGCGGCGGAGGCGGCGGGCGG<br>TGAGGGAGGAGGCGCGGAGGAGGGACTTGGTGAGGATGGGGGTGGTGGAGAGCTTGTG<br>GCGGGCCTCGTGGGGGTGTTGGATGATGAGGATTTGGGTGGTGGTTTGGATTGGAGGAAG<br>TGGAAGCGC |
| >Gm03_37730768 | GCAGGTGTGTGCACCTTGTGTGCTGAGCTTCCATGCTCTGGTGCAATGGAATAAAGTGACA<br>CTTCAAGAGCAGCAACTTCTCTAAGCTCCTCTTCGAGCTTTTCAATTCGTAATTCCATTTCTT<br>CAATTTTTAATTCTGCAGCTGTATCATCCTCATGTTCACCATTTTCTTCAGCATT[T/C]ACTGT<br>TTCATGAATTTCATCTTCACTTCCTACACTCTGAGCACCATTGGAGGATCCATCCACAACAT<br>CAGGTTCCTTGACCTCTTGAACAGGTTTTTCATCTACACCTTCAGAAGATTCTGATGATACA<br>TTTACAGGAACTTTCACAGTCTTGGAATTGGTTGAGGGAGTATTTTTGTTT |
| >Gm03_37731694 | CCTTGAAGCTTTTCTCTTCTCAATTTCTTTCATGCTTTCAAATTCCTTCAAATATCAATCAAAT<br>AAAGATGATGTGATAGGGGGAAATGATAGCAGTAACTAACCTTAGCGAGCTCCTTAAGCCT<br>TAGTTCTCAAATCCTAAAGTCTGTTTGTTTGTAATCACTAACAATACCTACTCC[G/T]TAGAAT<br>AGTGTTTTGGCTTCCACCACCAGAGAAGTGCTTGTAAAACCTCTCTATCTTTCCAGAGGCTC<br>AAAACAACAATTGTCTACCTGCAAAAGTATTGGTAAAATAAGTGGCTTGATTCTCAGAGAAT<br>AATAGACAAAAATCGTATAAGGAAACCAATTTTGATTATCGGGATAAGAG |
| >Gm03_37787006 | TATCCCTGAAGTTTATGCTAAAAAGCAAGTCATTGTTGCATTCCATATTGCTCTAAACTGCAC<br>TGAACTTGATCCAGAGTTGCGACCTAGAATGAAAACCGTGTCAGAGAACCTTGATCACATC<br>AAAATACAGTGAGAAACAAGAGATGTCTTAGTGTAGTGGGGTTGATTTTGTAACT[T/G]GCG<br>GGCTAGTAGATGTATCTCTTTCTTCCATTTCTCAATGGAAATTGTTTCCTTTCACCTTTATTTA<br>AAATCAAGGAACGGCCCAAATTGATTGGTGTGGTAAATATTTTCCTTCTTTTTACATCCTGTT<br>TACTTCAAAATACAAATCCTACGGATTCGCATTGAACACCTTGCTTAAAT |
| >Gm03_3 | GTCTAATTAGTATTATTTCTCTTTCTTAGTTTCCTTCTATATATGCTATCACATAATCAACAAA |

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| 7823922 | AAAAAAACACAAACACTTGATAGTACTACTCAAGGTATGGCTTTTCAAGTGTTGTTCATTTGT<br>TTGATCTCAACCATCGTGTTTGCATCCATACTATGGAGAAAACAAAACAAAA[C/A]CAAGACC<br>CTTCTTCCACCGAGTCCAATGCCCCTACCCATCATTGGACACCTCCACCTTCTTTCTCCAAC<br>ACCTCACCAAGATTTTCACAAGCTCTCACTCCGCTATGGACCCATAATACACCTTTTTCTTG<br>GTTCAGTCCCCTGTGTGGTGGCTTCCACAGCAGAAGCCGCCAAAGAGTT |
| >Gm03_37825579 | GAGTTTAGGCCAGAGAGGTTTGTTGAAAATGGGAAGAGTCAATTGGATGTTAGGGGACAAC<br>ATTATCATCTACTTCCGTTCGGTAGTGGAAGAAGAGCATGTCCTGGTACTTCTTTGGCATTG<br>CAAGTTGTGCATGTGAATTTGGCAGTTCTAATTCAGTGTTTCCAATGGAAGGTTGA[T/A]TGT<br>GACAATGGCAAGGTGAACATGGAAGAAAAGGCTGGCATCACTCTTCCGAGGGCTCACCCC<br>ATAATTTGTGTCCCTATTCGAAGACTTAACCCATTCCCTGTTGTGTGATTGTTTTTTATTTTA<br>AACATCATTTTTCCATTCACGTATATGATATGATGTCATGTCAAACATTTATGC |
| >Gm03_37827399 | GTCGAGTGATCCATACCCGCTAGGTTTTACACATTCTTTTCCCTGAAACAAACACCACCCCT<br>TTTAGGTCTTCTTCTAATCCTCCCTCTCTCTAACTTTCACACGCAGCGGCTTCTTCTTCCGTT<br>TTCCTGAATCGGTGTGAACAATGGCGACGTACGCTGCGATGAAACCCACCAAGC[C/G]AGG<br>GTTGGAGGAGTCCCAGGAACAGATCCATAAGATAAGGATCACCCTTTCTTCCAAGCACGTC<br>AAAAACCTCGAGAAGGGTATGCACCTATTTATTCTACTTTTTGTTTTTAAGGTTGTTGCTATC<br>CTTAGCCTTATGTTTCTAGTTTTGTGTTACTGTTAGTTTGTGCGGACTTGGTT |
| >Gm03_37828684 | CAACACATGGGATAGATTTGAACTTCGTGTCCACAAGAGAGTGATTGACCTCTACAGTTCC<br>CCAGATGTGGTTAAGCAGATTACCTCTATCACAATCGAACCTGGTGTGGAAGTTGAGGTGA<br>CCATTGCAGATGCTTGATCTATATCCAAATTTTAACTGTTATGGTTTCCTAGTTTTT[G/A]GTC<br>TCCTCTTATTCTGTATTTTATAAGTTTTGATTGCGGGACCGAGTTGAATTGTTTTCTTTTGTTT<br>TACGGTTGTAGACGGTTGATGAATACCTGAGAAATGTCATTTTTATATATTCTAGAATCCTAC<br>ATATATTTGTTTTGAAATTATTACGAATCATTTCTAATGGACTCAGCTAA |
| >Gm03_37828746 | CAGATGTGGTTAAGCAGATTACCTCTATCACAATCGAACCTGGTGTGGAAGTTGAGGTGAC<br>CATTGCAGATGCTTGATCTATATCCAAATTTTAACTGTTATGGTTTCCTAGTTTTTCGTCTCC<br>TCTTATTCTGTATTTTATAAGTTTTGATTGCGGGACCGAGTTGAATTGTTTTCTT[G/T]TGTTT<br>TACGGTTGTAGACGGTTGATGAATACCTGAGAAATGTCATTTTTATATATTCTAGAATCCTAC<br>ATATATTTGTTTTGAAATTATTACGAATCATTTCTAATGGACTCAGCTAAGATTATATCTTTTC<br>CTTTTCCTTTATCATGTTCTGCAAATTTTTAAACCTGAAACTGATTGT |
| >Gm03_37832228 | CCTTGTGTTCATGAAACTGCCTTTTGTTTTTAGGTACCAACACATGGGACAGATTTGAACTT<br>CGTGTGCACAAGAGGGTGATTGACCTCTACAGTTCCCCAGATGTGGTTAAGCAGATTACCT<br>CTATCACGATTGAACCTGGTGTGGAGGTTGAGGTGACCATTGCAGATGCTTGATCT[C/T]GA<br>TCCAAATTTTAACTGTTATGCTTCCTAGTTTTTTTTCCCTCTCTTTTTGTATTTTGTAAGTTTT<br>GATTGTGGGACTGAGTTGGATTGTTTTCTCTAGTTTTACGGTTGTAGACATTGATGAATACC<br>CGAGAAATGTCATCTTAATATATTCTAGAGTGTTACATATTTTGTTTGAAAT |
| >Gm03_37863675 | CTTTGATCTAATGTTTGCAAGAGCATCAGTCCCGCTAACGGTTGCAGCATCCGAGTGCCAC<br>GCTTCGGGAAACGCCTCATCAGCTTGTGTACCCATCCAAACAGCCAGCATCAGCTCCCCCT<br>TCGCCTTGTCACCCTTTCTGTCCTCCAGCCTATACCACTGCGGTGCCAAGGGACTGT[G/A]T<br>GGTGGAACACGCTTTGGGATCTCATTGAGGTCAAATAAGACACGACCAATGAAGTCATCTT<br>TCACGACATCCTTGTCCTTCACAGTGACCTCCAGTATGGAAGCCTGAATGCGGTCTTTGGA<br>GAAAGCAAAAACCTGGTTCCATTCGGGATTAGACTTCTTGTCGAAGTGCCGAGTGGT |
| >Gm03_38055240 | GATATATATTGACTTCCATGTTTATTTTTCTTATTAGTTTTCAGTGTAACATAGTATTTATACA<br>TTAGTTAAAAATTGGTTTGCACAAGGATGGAAGTCAGTATTATTGGTTTGGTCTCAACCTGG<br>CTGGTTCAAGAGGAATCAATCATCTGATGGTAGAATCTCACTCTTTTAGTCAT[G/A]AAGATG<br>ATAAAGGATGGCTGCTTAGACACCCACCTGAGTCCGCCCGACTAGTCAAATCTGTTCTTTC<br>TTGGAATCACGTATTATTCAGAGAGGCCAACCAAGTAGCTGATGCTTTATCCAAACATGGTC<br>TTTCCTTGGTACTACTGATAGCATTGTTTTTTTTTTTATTCAGTTCCGTCT |
| >Gm03_38055290 | ATAGTATTTATACATTAGTTAAAAATTGGTTTGCACAAGGATGGAAGTCAGTATTATTGGTTT<br>GGTCTCAACCTGGCTGGTTCAAGAGGAATCAATCATCTGATGGTAGAATCTCACTCTTTTAG<br>TCATTAAGATGATAAAGGATGGCTGCTTAGACACCCACCTGAGTCCGCCCGACT[G/C]GTCA<br>AATCTGTTCTTTCTTGGAATCACGTATTATTCAGAGAGGCCAACCAAGTAGCTGATGCTTTA<br>TCCAAACATGGTCTTTCCTTGGTACTACTGATAGCATTGTTTTTTTTTTTATTCAGTTCCGTC<br>TTTTCTTTCTGTTAAGATATGTGCTGATGTATATTGTCTACGACCTTCCCT |
| >Gm03_38065066 | TGTGGAACCACCACTCAAGACTATGTTACCATAGAGATCCTTCCTGATGTCGACATCACACT<br>TCATGATAGAGTTATATGTTGTCTCATGGATACCAGGAGATTCCATCCCAATCATGGATGGC<br>TGGAAGAGAACTTCAGGGCACCGGAATCGTTCAGCACCGATCGTAATCACCTGCC[A/G]AT<br>CAGGTAGCTCATAGCTCTTCTCAACTGCTGAGCTGGTCTTGGCAGTTTCCAACTCCTGCTC |

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| | ATAATCAAGAGCAATGTAGGCCAGTTTCTCCTTCATGTCCCTCACAATTTCCCGCTCCGCAG<br>ATGTGGTGAAAGAGTAACCACGCTCAGTCAAGATTTTCATCAGGGCATCAGTGAG |
| >Gm03_38083417 | GTTTTCTTTTCTCTTCCATCCATGGATTCTCTGAGTTCCATCAACGGCGATTTCGGCTTCGA<br>CGGCGGCACGGATCGCAGATTCGCGTTTTCGCGCCAAGCCTCCTTCCAACAACCTCACAC<br>GCCGATAGACATTCCGGCGCACGGCCACTACGACCACCACCACTACTGGTCCCCGCG[T/A]<br>GACGATAAACCCTCCGCCGCCTCTCTCCAAATATCCTCTCTCTCCTCCTTCGTTTTCTCCGT<br>TTTCCGAAGCGTTAGGTCCGGCCACAGGTACATGAAGAGGCTCTTTCTCATGATCTCGCTC<br>AATGTCGCGTACTCCACCGCCGAATTGCTCACTGGACTCTTCACCGGTCGCGTAGGT |
| >Gm03_38117453 | GTACATGAAATTATAATAACCGTTTTCTGCACTTGTACTTAATTATTGGCCTTACTTGCTATT<br>CTCATGAGCTACAGCAGCAATGTGGTTGCTTGTTTGCCCCAGCAAACTGCTTATGGAACGC<br>GCTTTCACCATGCCAAGCTTCATCCTCTTCTTCGTCGACGTCATTATTATCCCTG[G/A]CTTC<br>TTCTCCTCCTTCTCCCCAAAGGGCTCAGCATCATCAACACACTCAATTTGCTTCTCGAGAGA<br>ACAAAAAGAAGGGGAAGAAGAAGAAGGGTGAGGCACGTGGTGCACGTGCACCTCCTTTGG<br>TGCAGTTGATGCAATAATGGAACGGCTTCTAACACTTGTCATGCTTCTGAGTCT |
| >Gm03_38117485 | TTGTACTTAATTATTGGCCTTACTTGCTATTCTCATGAGCTACAGCAGCAATGTGGTTGCTT<br>GTTTGCCCCAGCAAACTGCTTATGGAACGCGCTTTCACCATGCCAAGCTTCATCCTCTTCTT<br>CGTCGACGTCATTATTATCCCTGGCTTCTTCTCCTCCTTCTCCCCAAAGGGCTCA[A/G]CAT<br>CATCAACACACTCAATTTGCTTCTCGAGAGAACAAAAAGAAGGGGAAGAAGAAGAAGGGTG<br>AGGCACGTGGTGCACGTGCACCTCCTTTGGTGCAGTTGATGCAATAATGGAACGGCTTCTA<br>ACACTTGTCATGCTTCTGAGTCTTCCCTTCCCCAAGTGATGCTCACACAGCGAGT |
| >Gm03_38118175 | TCCCATCTACAACGTATGCAACACCAACACAGTAAACAAAAAAAAAAAAAAAAAAACACCAC<br>CAGCAAGCAAGACACAGTTAGTTAGTTAGTTGCATTACATGCATTGAGTTTTTTGCCATTAC<br>CTTGAGTAGAAGATGAGCTTAACGGTGGCAACAACTCAGCTTGTGTTTTTTCCGA[G/A]TCA<br>AAGGTGCGTCCTTTCCTACAAACAAACCAGACCCAGAAAGACCCACAATTCCATAACATAC<br>ATTTGCACATACTTGTACGTGAATACATAAAATTTACGGCAAAAGGGTGTGAATTAAAGTGA<br>AAGTTGGAGTGTAATATTTCGAAGGAACAAAAACGCAGTGTAGTTGGGGACCAG |
| >Gm03_38119584 | AGGTTTCAGATTTCAAAACAAAAATAAGATAAAGAAGAAAAAGGGTATCAACAAATAAACCA<br>AAAATCTATAGCTACTACATCTACATGACCCTCCAAAGACCAAGAAGAAAAAATAATTATGTT<br>TTTATCAACAACTCTTTCTCTCTCTCTATCTCTCTATCTCTCACACAAACGCAT[C/G]AATACA<br>TACACTCTTTTCTTTCTCTCTCTCTCTCTATCTCTATAGCACTCCATATATATTGCTTCCATGA<br>GTTATTATTCTCTCTCTAACTTTTATTTGTTGCACCACAGAAAGGGAGTTGTATGGGTGAGG<br>ACGGCACGTGCGATGGAGTTAAGGGAGGAGGAGGTACGTGTGGAACTA |
| >Gm03_38131888 | GAGGCATTTACTTTAGAGGGCATAACATAACTGCATATTATATATTAATTATTTGCAGGGAG<br>GAGGTCCTTCATGGAACGTACTACTAGGAAGAAGGGACGGTTTGATTGCAAACCAATCTGG<br>TGCGAACACATCCATTCCCAATCCAACAGAAAGCCTGGCCAATGTCACTGCCAAAT[C/G]TG<br>CTGCCGTTGGCCTAAACATAACTGATCTCGTTGCATTATCTGGTAATCATTATTATATTGCTT<br>CCCCCGTCTACTTTCTTGTGTGCACACACAAACTTCATACAACATATGTAGTGGAATAAAAA<br>ATAATATAAAAGAATTTTTAACAATTCATGTCCTGAAATCAATTGAATTAGAT |
| >Gm03_38132996 | TGACAATTTACCTATAGAAAAATGGTTGATTTAATTACATAATTACTATGATGCTTATTAAGTA<br>GTGGTTTTGTTTTGAGTGGAAAAGGTGCACATAGTTTTGGTCGTGCGCAGTGTAGATTTTTC<br>AACCAGAGACTGTTCAACTTCAGCGGCACAGGTAGCCCTGATCCCACGCTGAA[C/G]ACAA<br>CCTATTTAGCGACACTTCAGCAAAACTGTCCACAAAACGGAAGCGGCAACACTCTGAACAA<br>CCTCGACCCTTCGTCTCCGGACACCTTCGACAACAACTACTTCCAAAACCTTCTCAGCAATC<br>AGGGCCTTCTCCAAACAGACCAAGAGCTCTTTTCCACCAACGGCGCCGCCACA |
| >Gm03_38136442 | TCCATCACATCACATCACAACACAACATAACATTCATATGAACCAGGTGAAGCTCAAGTTCT<br>TCTTCCTTGTTCCTTCTTCCTCATTTCCCATTTCCATTTTCCTCTATAAACCTCTCCTCCCTCT<br>CTCTCTGACTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTAGATC[A/G]CACCGC<br>ACCGCACCGATGGAAACACAATGATCCAACCCTAACCCAAGCGCCTCTTACCTCCAAGGTC<br>TTCCATTTTCTTCTTAATTCCTCTTCCATATCCCCTCTTTTCTTTCTCTCATCTATTTTATTTTC<br>TTCTTTTAATTGCATATATGTCAAAAACAATTTTCTGCTTTTTTTTTT |
| >Gm03_38150181 | ATATATATACAGTGGGTATGGAACGTGTGACATCAGAGATTCCGGTGAGGGTGGTGGATGA<br>CACCGACGATGGTGCTGCACTTTCATCTCCCAACAGTGCAGTGTCATCTTTTCAGATGGATT<br>ATTGTGTCAGGAACAATAGAAAGTCTAGTGAAGGTGCCAGCGATGACGACGAAAAT[G/A]G<br>CTCATCAAGGAAGAAACTAAGACTCTCCAAACAACAATCAGCTTTCCTCGAAGACAGCTTCA<br>AAGAACACACCACTCTCAATCCCGTAACTTTCACTTTCCTTTTCTCTTTCTCTATTATTTTTTT<br>TTAATCATTGAAAGATAGAATAATATCTATAATTTTATTCAAGTTTAATTATA |
| >Gm03_3 | TCCTCTCCTCACCAATTTGTTTTCCATATGAACAAATTTATTACACAGGATCAAGGTACTCAC |

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| 8154653 | ATCTCTTAATTCTGTATTATATTGGTTCACTTAATTTTATGAACCTTTAAAATAAATGCAAAAG<br>GCACTTTCTTCTGTAGATGGTTTCTTTTTCTTTCTTTCACCATCCTGGACAT[G/T]CGTGGGA<br>ACAAAAATGGAACATACAGCAGCTGCATCTGTTTGAGCTTAACTCATTGACCATAAGTGAGG<br>CAGAAGTTTGGTAGTTTATGTGTTTACCTATGCTTTCTTCTGCTCATGCTGATTCCGATACTC<br>TCTCAACAGAAGTTCAGCGTAGAGAATTTCATTCCATAAATCAGGAAC |
| >Gm03_38170431 | TTAGATATCTTAGTATGGGAAAATAAAACGAAAATGTGAAATCTTTGCAGCTGTGGAAAGAT<br>GGAGAGATGAAAGAAGAAGTCATTGGAGGCCATAAGGCCTGGCTAGTTATTGAGGAAGTC<br>AAAGAAATGATCCAAAAGTATTTATGATTCTTCTATTTTATTTTTCTTGCTCCCTCA[A/C]CCC<br>CCCACCCCACCTCACAAAAAAAAAAAAAAGAAGAAAGAAAGAAGTTACAATTGAAGAAACTAA<br>TCTTCCAATGTTTTTACTTTTTTTTCTTTAACATTTTTCATGTTGGCAACCGCATGTAGCTGTG<br>TATCATATATATATATTAATGGAACTGTGTACCATAGCTGAAAGAAATTTA |
| >Gm03_38170524 | ATAAGGCCTGGCTAGTTATTGAGGAAGTCAAAGAAATGATCCAAAAGTATTTATGATTCTTC<br>TATTTTATTTTTCTTGCTCCCTCAACCCCCCACCCCACCTCACAAAAAAAAAAAAAGAAGAA<br>AGAAAGAAGTTACAATTGAAGAAACTAATCTTCCAATGTTTTTACTTTTTTTTTCT[A/G]TAACA<br>TTTTTCATGTTGGCAACCGCATGTAGCTGTGTATCATATATATATATTAATGGAACTGTGTAC<br>CATAGCTGAAAGAAATTTAAGTGGAAAAGGAAGATGCTCACTGTTTCTCCCTCCCTCTCAAC<br>CATTAGAGATTTAGAGGGGAAAAAAAAGTGGGGGTTTTTATACCAAATAA |
| >Gm03_38173525 | ACCTCCTTACTAATCCTCGCATTGCTCTGTGTAAAACCCTTCCACCTATTCTCATCCATCAAA<br>ATCTCAAACAAATCTTTAGCTCTGCAATTAAACCTCTCCGTCATGCTAATACTCTTCCTTCCC<br>TTCTTCACCTTCTCCTTCTTCTCCTCCTTCTTCGGCGCAGCAGCCGTTGTTTT[T/C]GTCGTC<br>GTCGGAGTCGTCGTTGTCGTTGTCGCCGCCGGAGACGGCGACAACGACGACGGCGCAAC<br>CTTCTTGGGTTCCAATTCGTCCTTAACAGGACCTCCTTTGGCCATGCTCTGCACCCAAACC<br>CTAACCTTCTCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGCATCCTTAATC |
| >Gm03_38173719 | CGTCGTTGTCGTTGTCGCCGCCGGAGACGGCGACAACGACGACGGCGCAACCTTCTTGG<br>GTTCCAATTCGTCCTTAACAGGACCTCCTTTGGCCATGCTCTGCACCCAAACCCTAACCTTC<br>TCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGCATCCTTAATCCTCTTTCCAACCG[G/T]<br>TCCCTCGTCGTCGACAGTAACCCTAACCTCGGGATCCTCGTCGGCGTTCTCGTCGGAGAT<br>GTAGGGGATCTCGACGGTGCCGTCGACCTTGAGAAGAGAGGTTCCCAGGGTGTCTTTGGC<br>CTCTCCCTGCCAATTGAGAGTGAGGCTGATCTCGTAGCCGGGGATGATCTTCCCCTTTCG |
| >Gm03_38173815 | GCTCTGCACCCAAACCCTAACCTTCTCCAAGATCAAGGGCTTCCCCTTGGAAACCATGGCA<br>TCCTTAATCCTCTTTCCAACCGGTCCCTCGTCGTCGACAGTAACCCTAACCTCGGGATCCT<br>CGTCGGCGTTCTCGTCGGAGATGTAGGGGATCTCGACGGTGCCGTCGACCTTGAGAA[A/G]<br>AGAGGTTCCCAGGGTGTCTTTGGCCTCTCCCTGCCAATTGAGAGTGAGGCTGATCTCGTAG<br>CCGGGGATGATCTTCCCCTTTCGGACATTGATGTAGGCCTCGCCGTCGAGGGAGCGAAGC<br>GACGTCGTTTTGAGGAAGAGGTTACCCTCGCCGTCGAGGATAGGGAGGTTAGTGAGGAG |
| >Gm03_38174150 | CGAGGATAGGGAGGTTAGTGAGGAGGCTGGTGAAGAAGGTCTTGACCAGTCGAGGCAGTT<br>GGTCTCGGACCAATGCCAGTTGTGGACATTGGTGCCGTCGGGGCGGTCCTCCACGATCCA<br>CCGCTTGTCGCCCTCACCGTAACGAGCCATTGCAACTGATGCCTCTTTTCTGGGAGAGT[A/<br>C]CCTTAGTGATTAATAATAATTGGATTGGGGTGAGGGTTATGAACTATGATGATTATTATTA<br>TATGTGTTGAGTGTGTGTGGAATGGTCTAGAATGAAAAGGAAGGGTCTAGAATGTTGATGT<br>TGCTTTGGGTACACTTTCTTCACCAACCAACCAAAGCCCGAGAAGGTTCCCTAGGGTT |
| >Gm03_38389430 | ATAAACACCACACTAAAATTATGCCCAAACACACAAATAAAAAGAGAATAGATATCTCGATT<br>CACGAGAAACTCAAATAAATGAAAACTATGCAGGAACCATGTTAGAAAACAACTAATTATTT<br>TCAAATGTTAAAGGACTATACATCATCCAATGTCAATCCTAATCTTACTATATAA[T/G]GCAAC<br>CAACTACATACGAAAACAAGAGCCTTAAATCTAAAACTCCTGACTAGCAGATCCAATCTCGG<br>TCTTCCCCTTGCCAGCGACCTTCTTGGGCAACAAATTCTGGTGAATGTTAGGCAGAACACC<br>ACCGTTGGCAATGGTCACAGATCCCATCAGCTTGCTCAACTCCTCGTCGTTC |
| >Gm03_38389449 | TATGCCCAAACACACAAATAAAAAGAGAATAGATATCTCGATTCACGAGAAACTCAAATAAA<br>TGAAAACTATGCAGGAACCATGTTAGAAAACAACTAATTATTTTCAAATGTTAAAGGACTATA<br>CATCATCCAATGTCAATCCTAATCTTACTATATAAGGCAACCAACTACATACGA[T/A]AACAA<br>GAGCCTTAAATCTAAAACTCCTGACTAGCAGATCCAATCTCGGTCTTCCCCTTGCCAGCGA<br>CCTTCTTGGGCAACAAATTCTGGTGAATGTTAGGCAGAACACCACCGTTGGCAATGGTCAC<br>AGATCCCATCAGCTTGCTCAACTCCTCGTCGTTCCTAACCGCCAGTTGAATGT |
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| >Gm03_38419319 | AACCCTTTTGGACCAAGGGGGAGAAGCATTGAAGGACTCAAATTCCCTAAAAGTCTTGTTT<br>GTGTGGCTGGTTTGGATCTTCTGCAGGATTGGCAATTGGCATATGCAAAAGGTCTTGAGGA<br>TTGTGGACAACAGGTCAAGCTTCTTTTTCTCAAGGAAGCCACTATTGGCTTCTACTT[A/G]TT<br>GCCAAACAATGACCATTTCTATTGCCTCATGAAAGAAATCAACAACTTTGTCAATTCTGATTC<br>TGACTGTTAATATACTATTAGTACTAAGACGACAGACGACTACTACTACTACTGCTACTACTT<br>AACCTTACCTTACCTACAGGAGGCATACATAACTAAAGCTTGACATTTTACT |
| >Gm03_38419321 | CCCTTTTGGACCAAGGGGGAGAAGCATTGAAGGACTCAAATTCCCTAAAAGTCTTGTTTGT<br>GTGGCTGGTTTGGATCTTCTGCAGGATTGGCAATTGGCATATGCAAAAGGTCTTGAGGATT<br>GTGGACAACAGGTCAAGCTTCTTTTTCTCAAGGAAGCCACTATTGGCTTCTACTTCT[C/T]GC<br>CAAACAATGACCATTTCTATTGCCTCATGAAAGAAATCAACAACTTTGTCAATTCTGATTCTG<br>ACTGTTAATATACTATTAGTACTAAGACGACAGACGACTACTACTACTACTGCTACTACTTAA<br>CCTTACCTTACCTACAGGAGGCATACATAACTAAAGCTTGACATTTTACTTG |
| >Gm03_38717673 | AAAAATAGAAACAATCAAATTACCTATACATATTTTTTGAATTGGAATTTATTTAATTCCATTT<br>GCAAAATTATTGACCTTGAGATTAGAACATTTGGCATCCTGAAGCAAGAGAGTCGAAGTGA<br>AACCGAATCTATTTGAGTCAAGATCAAACTGCATTAAATTATCCTCCAACTGAT[T/C]CCCTC<br>CGATTACAATGGGAGTTCTCCCGCGGGTCCCACCGTCCACAAAACCCAAACACCACACATC<br>CACTCCTCCCTTCGCAACCCTCACCATCGAATTCCCGCCAAAGATTCTCCAGAACACGTCC<br>TCGCTGTGCATCACCAGATCAACGGTGGGCACCGCGGGTCCAACTCGTGTCTC |
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| >Gm03_38718672 | GACGGGGTTTTCGGGGAAGAGGGCGCAGAGGGAGGAGTTGTTGGAGCATGCGTTGGAGG<br>GGAAGGAGTTGCAGAGAGGGGTGTTGCAGGGGATGTGGTGGGAGGAGGAGGAGGTGTAG<br>GTGGAGTCGCAGAGGACCCAGCTGAGGGAGGAGCCAAGGTGGAGGTGGAGTTTTGTGGG<br>TT[G/T]GAGTGGGGTTTTCAGGAACACGGAGAGAGTGTAGAGTTGGGTGGTGTCGTCTTTT<br>GAGATTGGGGCTATGAGGGGGATTTGGAAAGTGGGTGTGAGGAAGAGGAAGAGTATCGCC<br>AAGTTGAAGTTGCAGAGAGATGGAAGAGGAGGAGGCATTTTGGTTTGCTTGCTGGAGCAA<br>GGAGA |
| >Gm03_38718710 | TGTTGGAGCATGCGTTGGAGGGGAAGGAGTTGCAGAGAGGGGTGTTGCAGGGGATGTGG<br>TGGGAGGAGGAGGAGGTGTAGGTGGAGTCGCAGAGGACCCAGCTGAGGGAGGAGCCAA<br>GGTGGAGGTGGAGTTTTGTGGGTTGGAGTGGGGTTTTCAGGAACACGGAGAGAGTGTAGA<br>GT[T/C]GGGTGGTGTCGTCTTTTGAGATTGGGGCTATGAGGGGGATTTGGAAAGTGGGTGT<br>GAGGAAGAGGAAGAGTATCGCCAAGTTGAAGTTGCAGAGAGATGGAAGAGGAGGAGGCAT<br>TTTGGTTTGCTTGCTGGAGCAAGGAGATAAACAAAGAAACAGTGGTTGGTGTTGGAGTTAA<br>AGTG |
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| >Gm03_38720115 | ACCTAAGCTTCTTTCCTATGTGATGCATGAGCCGAACAATGCCGTAGCACAAATACAATCTC<br>CTAGAAAAAATTGTACAGCTTTTCTGCTGGCACTGCATTCAGGAGTCTTTGCTAGCTCTTCA<br>ATAAAAATACGATGTCGTTCGACATGCTTAGCTTTTATTATAACTCACTTGCGCC[G/A]CGAA<br>GAGATCATATGCTGGTGAGCCTTGATATCCCTTTGTATTCTGTCTGCATACAAGGGTAGGC<br>GAATGATCTGATTGATCTCATTCAATAAGACCTCTTCTGTGATGTTATCCTTTATGCTTCGCA |

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| >Gm03_38942920 | TAATTTCTTTTTTTTTTCGCATTTCTATTTTTTCTCCTCATTTCCTTGGGAACCAAACAGTTAG<br>ATTAATGACAGTTAGATTGATGAGGTACCTGAATCCTGACATAGTCGGTACGATTCCAACAG<br>AAGGCGTTCCCTAGCATCTGGTCAACGGTCTCTGAAACACCGTCGAGCGCAAT[A/G]TCAAT<br>CAGCATTGACGTAGAGCACTCGCCGGCATTGTTCATTCTCTTCGCCGGAGCTCCGTTTCCG<br>ATGGAGAGAACAAGGAGATCCTCCACGCCGTTCACCGACGGGAAGTCGCGCTTGTTGTGG<br>AGGACGTGCGTGACCGCCGCCGCGGCCGGATTGTTCATCACTAAGCCGCCGTCG |
| >Gm03_38942927 | TTTTTTTTTTCGCATTTCTATTTTTTCTCCTCATTTCCTTGGGAACCAAACAGTTAGATTAATG<br>ACAGTTAGATTGATGAGGTACCTGAATCCTGACATAGTCGGTACGATTCCAACAGAAGGCG<br>TTCCCTAGCATCTGGTCAACGGTCTCTGAAACACCGTCGAGCGCAATGTCAATC[G/T]GCAT<br>TGACGTAGAGCACTCGCCGGCATTGTTCATTCTCTTCGCCGGAGCTCCGTTTCCGATGGAG<br>AGAACAAGGAGATCCTCCACGCCGTTCACCGACGGGAAGTCGCGCTTGTTGTGGAGGACG<br>TGCGTGACCGCCGCCGCGGCCGGATTGTTCATCACTAAGCCGCCGTCGACGGCGG |
| >Gm03_39790817 | CGTGTTTGCCATGCAGGGTTTTGGAATTTTGGCAGGTGGTATCTTTGCAATTATAATTTCAG<br>TTGCATTCAAGGAAAGGTTTGATGCTCCACCATATGAGCTTGATCCAGCTGGCTCAACTGTT<br>GCACAAGCAGACTACATTTGGAGGATAATTGTTATGGTGGGAGCACTGCCAGCTG[G/T]GTT<br>AACTTACTACTGGAGGATGAAGATGCCGGAAACTGCCCGTTACACCGCTCTAGTCGCCAAG<br>AACACGAAGCAGGCTGCAGCAGATATGTCTAAGGTTCTGCAGGTTGAGATTCAAGCTGAAC<br>CGCAGAAAGAGGAGCAGAAGGCTAACTCATATGGCTTATTTTCAAAGGAGTTCCT |
| >Gm03_39790874 | TTCAGTTGCATTCAAGGAAAGGTTTGATGCTCCACCATATGAGCTTGATCCAGCTGGCTCA<br>ACTGTTGCACAAGCAGACTACATTTGGAGGATAATTGTTATGGTGGGAGCACTGCCAGCTG<br>CGTTAACTTACTACTGGAGGATGAAGATGCCGGAAACTGCCCGTTACACCGCTCTAG[T/C]C<br>GCCAAGAACACGAAGCAGGCTGCAGCAGATATGTCTAAGGTTCTGCAGGTTGAGATTCAAG<br>CTGAACCGCAGAAAGAGGAGCAGAAGGCTAACTCATATGGCTTATTTTCAAAGGAGTTCCT<br>CCGTCGCCATGGACTGCATCTACTTGGTACAGCAAGCACATGGTTCTTGCTTGATAT |
| >Gm03_39794956 | AAGTTTTGAAATTTTCTATAGATACTTGCCAAAGTTAGAACAAGGAACTTTTTCATCCAAGTA<br>ATCTATCTGGATCCATAGAGTCACGCTCATACAATACAAGTCCAGCACACTGGGATTTACAA<br>CAATAACTGCCAAAAGCTTTAAACCCATCAGCCTTCAGATTCATATTATTGGAT[A/G]CGAGT<br>TATATATCTGTGGCAAGATGGGCTCTGCAGATGACAAAGCATGAAGAGGTAATTCATTAAA<br>GGTAAAACCTAGTAGATTCTGATATGAAAATGAATTTAAGTGCTTAAACATTTCAATGTGCAC<br>GGTCTCTCAGCACTTCAAGATCCATTTCTGTGGGGTCAGTAGCCTGGATTT |
| >Gm03_39795164 | TCTGCAGATGACAAAGCATGAAGAGGTAATTCATTAAAGGTAAAACCTAGTAGATTCTGATA<br>TGAAAATGAATTTAAGTGCTTAAACATTTCAATGTGCACGGTCTCTCAGCACTTCAAGATCC<br>ATTTCTGTGGGGTCAGTAGCCTGGATTTCATAATGGACACCATCTAGCTCACGTC[A/G]AAA<br>CCTGTCTTTAGTAGTGGCATAGAGCATCTTGGCACGGATCCGAGATGTTGAAGGGGACCTA<br>ATCAATATCATGCAATGAATAACTAAGAGTGATATCTCTGGCAAAAGCATAGAATGAGTAAG<br>TTAAGAAGCATGTTGTTGAGGATACATGAGAAGGCTGGGATAAAAGAAGTTCAA |
| >Gm03_39795203 | GTAAAACCTAGTAGATTCTGATATGAAAATGAATTTAAGTGCTTAAACATTTCAATGTGCACG<br>GTCTCTCAGCACTTCAAGATCCATTTCTGTGGGGTCAGTAGCCTGGATTTCATAATGGACAC<br>CATCTAGCTCACGTCTAAACCTGTCTTTAGTAGTGGCATAGAGCATCTTGGCAC[C/A]GATC<br>CGAGATGTTGAAGGGGACCTAATCAATATCATGCAATGAATAACTAAGAGTGATATCTCTGG<br>CAAAAGCATAGAATGAGTAAGTTAAGAAGCATGTTGTTGAGGATACATGAGAAGGCTGGGA<br>TAAAAGAAGTTCAATCCAAGTTTGTTCTTCACAAGAACAAGAGAGGAAGACAA |
| >Gm03_39846797 | AAACCTCAAGTTTCAGGTAAAAAACGTGACATGCAATCCTCCTTTACAACAAGCAAGTGACA<br>AAACACAAACTAAACAAACAAAGTAGTCATTTCTATATAACTTACAAAACAAAACATTATTAT<br>CATAAATAAAACTCAAACAAGAGTCCGATTTTCTAATCTGTACTCCAATGTGCG[T/C]GATTA<br>GTTGTCTCCACACTCTATGCACTAACAACAGTACTAACTTCATCCCCTTCTCGCATTAATAAT<br>ATAAGGAAGCGGATCAAAATGTGGGAACCACTTAATATTATGAGAAACTAGCATGATCTCAC<br>AAGGATGTTATCACAATCCTCGGGATGGAAACTCCTGCCAATTACACATT |
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| | AGACGGGGCCGGGAATCGTGACGGCTCCGCAGATCGAAACAGCGAAAAGTAGCGCCA[G/T]TAATCCTCCTAGGTTTCGGGCCATTCCTGCACCGATCAATGGAAGAATTTCAACAACAAAGCGAATCGCATTTACAATTTCGATGCGGATCGGCTTATGTTAGGGTTTGAGATCGAGAAGAAGAGAATTAGATCATACGCGGAAGCAGCAAGAAGCTGAGAAGAAATGCAATTGGCAAGC |
| >Gm03_39966061 | ATTTTGAGAATATTACATTGACTGCAAACACAACTCAAAATCCATTAGTGCAAATTAACATTCGTCGCTTCATTCTAATAACGTGAGCCAGATTTTGATGTAACTGGTTCACAACACAAAAGGCATAAATGGCTCAATCACTTGACACCAGGCACCAGCACTAGTTCACAAAATACTGT[T/C]TACGCATGGAACAAAAGACACTTAAAATTTAGAGCTTCTACATCACTCAATACTTTGGAGGTGGCTGCTGGGTTGGTAATAATCCAAAACGCTTCTTCAGAAGAACTCTCTGTCTTGAATATTTATCATCGGGTGAAAACCGGGCTGCAGTTCAGGAAAACCAGGTAAGTACAGAAAATG |
| >Gm03_39986148 | TTGTGAAGATGCTGCATGCAATCATTTGTTGAAATTTTTATGGCTGGAGTTTTATTTATACTTTCTACTCGTGTGTTCTTAACTTTTTTATTTTTATCTTGTCTCTTAAGTATCATGATCAAGAGAAGGGACGCAATTCGTCCCGATATGGCAGCAGTTCAAGAAGACCCATAATCTCA[G/T]CGTCAACCAGGCCAAGTTCCTCTGGTGATCATACTGACAGTCGTACTGGCCGGCTAACCTCAAGTGGAAGCCGACAATCTGCCACACATAGAAATATTCAACCTATGCACGAGACAAAACAACCAACTTACACACGCTCTGGATCCACCAGAGGCAACCGTGATGATCCTCTGCGGAGTT |
| >Gm03_40013399 | TTGATATGAAACCAAGTACTGTCACAGTTAATTCATGACACGAACAAATGAAGACAACTTGGTGGGTTGGGGGAAAATATTATTGTAACATTTCAATGTAGTAACTAAGCTGATTAGTTGTTGATACTTATTCGTGAAACAGGTTTTGTTCTTGCGAGACCAACTCCATTTTCTCATGA[A/G]TGATATCAGTGCTCCTTCTCCCTCATGATACTATTGTCTATCAGTTTTGACTAATGTAACGGGTTCCTACAATACGATGACATTAGACTGTTTTAGCATCAGGTGTGTCCTTGAACTTGGAATCAATACAGCATTAGCATTGCTGTGGTGCTATGTTGAACACGTCAAAAAACAACTACA |
| >Gm03_40013405 | TGAAACCAAGTACTGTCACAGTTAATTCATGACACGAACAAATGAAGACAACTTGGTGGGTTGGGGGAAAATATTATTGTAACATTTCAATGTAGTAACTAAGCTGATTAGTTGTTGATACTTATTCGTGAAACAGGTTTTGTTCTTGCGAGACCAACTCCATTTTCTCATGACTGATA[T/C]CAGTGCTCCTTCTCCCTCATGATACTATTGTCTATCAGTTTTGACTAATGTAACGGGTTCCTACAATACGATGACATTAGACTGTTTTAGCATCAGGTGTGTCCTTGAACTTGGAATCAATACAGCATTAGCATTGCTGTGGTGCTATGTTGAACACGTCAAAAAACAACTACAGTTGTA |
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| >Gm03_40059714 | ATTGATATTCATTGTTAAAATACTTGCTAAATCTCTTCTTTTTAAGTTCTACACTAATATTCCAATTGTTGTGGTAGCAGGAGCCAAAGCTATTCAATGGCTTAAAGTTTTATTTTTCTGGGGATTATGTGTCAACTTATAAGGAAGATCTCGAAGAATTAATTGAAGTGGGAGGAGGT[A/C]CTGTTTTGAGAAGCAAGGAAGAATTGGAATCACAAAGACATGAATGCAAAGGAGATTCTTCACAGTTGCTGATTGTTTACAACCTTGATCCTCCTCAAGGATGCAAATTGGGGGAGGAAGTTTCAATTCTTTGGCAAAGGCTAAACGATGCAGAGGATTTAGCTGCTAACACTTTACAAG |
| >Gm03_40084046 | CAACAAAGCATGTTTGATTTTTGGGATTGAAGTTTATTTATGATTCTGATAAAATGGGTTTGGGATCTAGGGCTAAACCTTTGGAGCAGATAAACGTGAGCCCTAAAAAGAAAGTAACTTTTGATGTCAATGTGAAAACGTACGAGCCCGAGCCTGATGAAGTTGCTGATTACCAACTT[G/A]TGAGAAGTGAAGAGGGTAGAGAGGAAAGTGCTTTTGTTGAAAAGTTAAGCCAAACAAAGTCTTACTCTGAAGTAAGTTCGGTGACTTCAGCGAGGTCTTACCCTACAAACCATAGGTACCACAGTTGCACGTGTAGTGATGATGAAGATGGAGCAATGGAGTATTGGGATAGTGATGTTA |
| >Gm03_40084245 | AGAGGAAAGTGCTTTTGTTGAAAAGTTAAGCCAAACAAAGTCTTACTCTGAAGTAAGTTCGGTGACTTCAGCGAGGTCTTACCCTACAAACCATAGGTACCACAGTTGCACGTGTAGTGATGATGAAGATGGAGCAATGGAGTATTGGGATAGTGATGTTACTGATGAGGATGAGGATG[A/G]TGATGATGATGGTGATAGTGACATGGGAGAAGAGTATGATGAAGTGGAAGAGGATTTTGAAGATGGAATAGTGTACTCAAGGTCAAGAAATGGTGCTAATCAAGTGGTTGTTGGAGAGGTGGAAAGTCCAATTCCAATGCATGATAAGGATCTGAAGTCAATTGGGTTGAACTCCAATGT |
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| >Gm03_40154315 | TTGGTGACGTGAATTCGTATGCTGGGGATCCGAATTCCATCCTACAGCAAGCTCAATTCAG<br>TGCAACTGGTGAGTCCAAGCCAGCTGGTGGAGCGGCTGATTCTAACGAGGCCTCTGCTGG<br>GGTTGGAAGCACAGCTGCTGACTCTACTATGGTATCTGACTACAATTCATCTGTAAAT[A/C]<br>GTGGTGTTGCCGGTGCAGTGACAAATACTTCTGGACTTGAAAACGGGAATGCGTTGGAGAA<br>TGCTGATGGGTCGGCTGATGAGAAACAGCAAGCAGATGGTTATGGTGTGCCTTTTTCTTTT<br>ACCTTTTTACTTTCAATGGAATTATCATGTTTTAAATTTTATTTTTGGACAATAAATT |
| >Gm03_40172340 | CAGACTACGGTTTGGAGGAAGAAGCCAGGGAATATGTCAACTCAGTTCATATAGATGATGA<br>TCCAGTGGACGAGTATAGTCTTCCTGAGCACCAGCAGCAGCTACAAGAAGAACTTGAAACC<br>GAAATTGTGGAGGAGGAAACTCCCGTACAGGAGGCATCTCCACCAATTCATAGCATT[A/G]C<br>ACACACTGTCCAAGAACCCCCTGTTGCTCTTGTGGAAGAGTCCTTTGAGGAGCCTCCTAAG<br>AAAACATATGCATCTATTGTATGTAATACTTTCTATACATGTTCTTTTTTTTTTGGCAGACTAC<br>CTTTTTTTGTGTGTAGTTATGTACTATCCATAAAAAAGGTACCACATGACTGGA |
| >Gm03_40172927 | CTGTATGTTGGACTTAAAACTAAATAAAGAGCATTTATCTTTTTTAACTTTTGGTGTTTTGTCT<br>TAATTTAATCGTGTTTCAATGAACTTGCAGTTACGAGTTTCCAAAGGGCAGCCAGTGTTGTC<br>AGCTGCTCCACAGTATGCTCCACAACATTCTTTTAAAAGTGCCCCACCTCCTT[A/G]AGAGTT<br>GAACCATGTAGCACAGCCTGCTGTTCAGCAGTCAAGCTCTGCATCTATGTATGTTCCTGAG<br>TCAGGGATTGAGGCCGCAGAAGAAGGCTATGGACTAGAAGAAGAAGGTTTAGTTTATGTTC<br>CTGATATTATAACCCTTTTCTTGGCATATTTGGCGTCTTCATGTTTTTGAAT |
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| >Gm03_40211426 | TGGCGTACCAGCCGGTGTCGGAGAAGACGCCGTTGACGTTTTCCAACGGAGGACCGAGG<br>CCGGCGTTGGTAGTGAACTTGCACATGTTGGTCCAAAGGGATAAGCTTCTGCAATGCTTCA<br>ACATGTCCTCGTTGAAGCGCGAGGGAAGGTCGTGGACGAAGATGTAGCGTCCTCCGCAT[G<br>/A]GGTCGCTCTTGTTGTCGGCGGTTCGGAGGGCACGGTCGAAGGGGAAAGTGGGTTCCTT<br>CGGTTCGGAAACTCGCTCAGGGAAGCCGAGGTTTTTACGAGGTTGTTGGTGTTGTTGTTGG<br>GATTGGAAAGTGATGGGGACTGCTGGGTCAGGGGCGGTGGGTTGGTGGCGGAGGACGGC<br>GA |
| >Gm03_40288569 | TCATCATCATGTTAATGCTCAAACTTGTGCTGTAGTTTTGTAAATCTCTTTAATTTCATTTGTT<br>TTCTTTTCAAATCTTTCAGGACATTCAGGTTGCATTGCGTGATGAAATCAAAAGTGCTTGTG<br>AATATCGTCCATTTGAGAAATGTGATTATGGTTCAAGAATAGCCAATGAGATT[A/C]GTCACA<br>AGAAAGTGGAATTTATTATGTCCCAGTTGGATGCTATAAAACAAACTGTAGATGAGTATCAT<br>GTAGCAGTTTGAAAATGTAGCTTAGTTCCCTGTAGAAGCCTGGGTTACCTCCCGGTAATTG<br>ACTTATTTGGGATTGCTTATTACTAGTTAGCATGTTGTTTTGGATGGGGGT |
| >Gm03_40338539 | CATGCTTACTTCATACTAAAGATTATACAGAATACAAAGAGTGGTTAGATGTGAGAGCAATT<br>CACATCAGAAAATTTTAAGATTGAGAGAGAGAGAGAGCATTCATTTTACCTCTAACACTGTA<br>TATATAGGCAATGTTGTTTCTCCATCGATAACAATACTTTTAAGAAGAGAACCAT[G/A]ACGC<br>CGACCATACGCAAGTAGTATGTGCTCAGATGTAGGCGAGAACTATATCAAACAGCAATTCA<br>ATCCTCTAAGAGAAGGCCATTTCAAATTATATTTGACCAATTTAATAAAACTTGGCCCCTAAA<br>AGTTGCAACATGAGTTACTTTGGTTGCTGAAAGTGCATGTCTATACAAATCA |
| >Gm03_40339831 | TAACATCAGAAGGTACCTGCAGAGGACAGCATGTGGTATGGTTAGACGACATCTATCAGCA<br>TTAAGTGGGGCACAGGGATTTTTTATGTCATGTGACCATACTCTTAACTTCACAGTACAAGG<br>CAACTCTGCAGCTGTTGCAGCCACTGATGTGGCAAGTTCTGACTGAATTCGACTTA[C/T]AA<br>TGGTTTGGATATCGAATCCATCATGTGGGGCATTAATAGAAGCAGCAAGATTGCCAGATTC<br>AGATACAGGTACACGGGACTGTGAAAAATGATTCCGTAAACCTGATCTCATTGAAGAACCC<br>GGTATGCTGATGCTGCCAGGTATTGCTGAAGATGGCATCGCTGCATCAACATTAGA |
| >Gm03_4 | TGTTGGCTTCCTTCAGCAGGTCTGGTTTCATCAGTCTCCATACCATCCATTGTGAGATTACT |

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| >Gm03_40340517 | TGAGATTACTGAGGCCAATTCCCATTCCATTAGAGAAAGCAGTATGAGCAGGATATTCTGC<br>ACCAGTTTGAGAGCTAGAGGGCATCTCAGAGAATGTATCCATGGGAGACACGGTAGTCTCA<br>TAATGCGCTGCTGCACTTGGGTCTGCATGTAACTGTACCATGGCAGCAGACTCAATT[G/T]G<br>CATGCTACCTGAGCCAACATCATGACTAGCATGCTGTAGTTCTGCTCTTGACTCATCAACAG<br>TATATGCCGGCATAACATAGAAAGGTAATGACACATAAGGTAGTTCGCTGGACAAACTAATA<br>TGTTCTGTAGGATGAATATTTGTGACAAAAACAGCAGGCGGAGGATATTGTAAAT |
| >Gm03_40377254 | AAGTTGCCGCAAGAGAAAAATACATCCTATTCATATTTCAGAGTTGCATTTCAAACCAAAATT<br>ATAAAATTGAATGATTTTTTTAAATATTAATTTCATGGTGACAATTGCAGGCAGCTGCCAAGT<br>GTAGAGCTTTGGGAGCTCGAACTGGTCTTCCACGTCGGACAGATCCACATGTG[T/C]TATCG<br>TTTTTACACTAGACAGAAACAACTGGTATTTCCCATCAAAGAAGCTCAAAAGCTCTTTCATCT<br>CTCTGCTTTTGGAGTTATGTTTACTATGTGGCTCTTTGTACATGTCTTGTTGTAAGATGTCCT<br>ATAGTTTGTACAGAATCATGAGTAGGGGTGCTCATGATTTGGGTATTTA |
| >Gm03_40459321 | ATTTTCAATTTGTTATATGATTTGTTGTACTTGTTTTTGTTTATTTACTTATATTCCATTTTCAT<br>GGACTTTGCAGATTGTTTCTGACTCAATGAGAGCTACAAATAAGAAAATAAATGGAACACCC<br>ATCAAGATGCTCATAGACCAAGAAATGTCCAAAGAAGTTGTTTCCAAGCACA[C/G]CCCACC<br>ACCAAATGTAGTTGCAAAATTAATGGGGCTTGAAGCCCTCCCACAGGGTGAGCTATCTGTG<br>GAGAGAAGCCATAGAGGAGATTATTCTCAACATATGTGTGGTCATTCAGGGACACCATTCA<br>ACCACTGGAACCTGGAAGATAGGTTTATGGACAAGGAAATGCTTCATGAAGT |
| >Gm03_40462434 | TGGATCCATCATTGAGGGACAAATACGCCAATCTCAATGACAAGGAGCCTCAGCAGCAACT<br>CCACGAGGCCAAGCGAAGGCAGAGGAGGTCCAATCAGAAGCTTGTATTCGATTGTGTGAA<br>TGTCTCACTAATAGAAATTACTGGTTATGGATCAGAGAAGAATTACTTGATGGGTAGT[T/C]G<br>GTTGTGCAGTGGGAGCCACAGCAGGGTCCAAGTCCCAGAAGCTGCATCTCCCCCATTGGT<br>GGACCTCATTGTGGCACAGATGAAGGAGTTAATATCTAGTGCTATGAGTTCTGTTTGGGTG<br>GTGGATTGTGGGGACAGTAACAGCCTGGTGGTAGAGAGTGTTGTCAGAAAAGAGGTTG |
| >Gm03_40537578 | TATTTTTATTATTTTTTATTGACGGTGAGTGATGAAAATTGAAACAGTGCAGACGACGATATC<br>ATGGAGCTGCTATGGCACAACGGCCAGGTCGTGGTGCAGAGTCAGAACCAACGTTCTCTG<br>AGAAAACTTCCGCCGGTGACCAACTCCCACGACGCCTCTCCCGCCGGTCCTTCAAT[T/G]A<br>CGAGAGAGATTCGACCGCTGGTGGAGAATTTCAATCAGCATCTCTTCATGCACGAAGGCGA<br>AATGGCTTCGTGGCTTCACTATCCTATCGACGACGACGAGCCTGCGTTGGATCAAAGCTTC<br>GGCGCCGATTTTCTCTATTCTCCGCCGACGACGGCTAACAACAGCAGCTTCATGCAA |
| >Gm03_40572180 | GAACGAAAAATAAAGACTAGTGTAATCCAAAGAAACGTGACGGAGCATATATGCATGCATG<br>CATGCATGTTCATCATTTCAAGGGAAAGGAAGAACACCGCTGCCACCACCAACGCCAGTTC<br>CAACGCCACCACCAATACCGCCACCGACACCGCTACCGGTACCGCCAAACCCTCCGA[A/C]<br>CCCACCGGTAGGACCGCCGAGGCCACCACCAAGTCCACCACCTCCGCCAAAACCACCACC<br>TATTCCGGCACCAGCTCCTCCAAAAGGCAGTCCATTGTTCCCAATCCCGGAATAACCACCA<br>ACTCCACCATAGCTGATGAAGTTCTTCTGGTCCTTAAGACCAGCATCCTTGGGGTTGGG |
| >Gm03_40585266 | TAAAGTGCATAACAATTGAGTATACCATCTAATAATGAAAATAACGCAAATAACATAATGCTT<br>AAAGCAACGTTCATATCAGAAGGGAAAAATAGTTTGAATCCCATCCAACAAAAATCATGCGA<br>TTAAAATCCAATTAAAAAAGCATAAAGTAAAATAAGTTTTTAAAACAGGTATCT[C/T]GAGGAA<br>AGCAACTACATTTAGTCCACTTCCTCAATCTTGGGGCCAGCACCACTTCCACCAGAAGGAG<br>GAGCAGCATACTCATCCTCTGCTGCACCAGCACCACCCACGTCTGGACCAGCACCACCTT<br>GGTACATCTTGGCAATGATTGGATTGCAGATGCTTTCCAATTCCTTCATTTTG |
| >Gm03_40585499 | TCCACCAGAAGGAGGAGCAGCATACTCATCCTCTGCTGCACCAGCACCACCCACGTCTGG<br>ACCAGCACCACCTTGGTACATCTTGGCAATGATTGGATTGCAGATGCTTTCCAATTCCTTCA<br>TTTTGTCCTCAAACTCATCTGCTTCTGCAAGCTGGTTGCTGTCTAACCACTGGATTG[A/G]TT<br>GCTCAATTGCATCCTCAATCTTCTTCTTGTCAGCCGGGTCAAGTTTCTCACCAATCTTGTCA<br>TCCTTCACGGTGTTCCTCATGTTGTATGCATAGTTTTCCAAAGCGTTTTTGGCCTCAACCTT<br>CTTCTTGTGCTCTTCATCCTCAGACTTGTACTTCTCAGCCTCTTGAACCATCTT |
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| | GTTCCGAGATCGATTCCGATAGCAGGACCCTCTCCTTTTCCGGCCATGGTTTCGGCGTGCG<br>GCGTAGAGAAAGAAGAGATCTAAGAAAGAGGAAGAAGAAGATGATAACCACAGCGATA |
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| >Gm03_40661741 | ATTAAAAAATCAATGAAGCATTAAAGAGTCAACAGAACCGAGACCGTAACTCTAATGAGAGA<br>GAGAGAGAGAGAGAGACTGACAGTGTTGAGAGTGCTCTGCAAATTCTGAGCGGCACCGAA<br>GGCGAGAAAGACCAAGAGAAAGGCCAAGCTCAGGATGTGAATATCCGTGGAGTGGTG[G/T]<br>CTCTTGCGAGCTTCGATGGCCGAATTATCATCGGGCACAAGTGGCGTTTCTTCGTCCCCAG<br>CAGGTAGTGTAGACGCCATTGCCATTGATTGAAACTCTTGTAGTTCTCGATTGCAAGATGGT<br>TGGCTATTAATATTTCTAAATTTGCTTTCGTCAAACGTCATCAGAGCGTCAACGTCC |
| >Gm03_40670148 | CCCCTGGAGAAAGTGTGGCGTACAGCGCTAGGGTTTTGAAGCAAAAGATAACAAGGATATA<br>GACAGCGATAGAGATAGAAAGGAATGAGAAAAAGAAGAGAGAAGCGAACCTTAGAAAGGA<br>AGAGAAGCGTTGGGAATGGCCGCACTTGTTCGAGTGGCGCTGTGGTTACCCTAGAAGA[T/<br>G]GATGGGAGCACAAGCGAGACTAGAGTTTGTTTCGAGTGCCTATTCTAAAATCTAAATCTG<br>TGGACCTATAATATACTGGGTTGGGCCGATCTCAGTCCACTCTTGGGGTATTGCTATTAGC<br>AATTCAAAGTTTGCTATTGGTAGTGGGAATAGTAGTCCCCTTACTCTTATTTTGTGCGG |
| >Gm03_40676583 | CCTTTCTAAAATTTCAGTATTTTCTCATTGAGCAAAAGCATACATTGCTTACAAACTATACCT<br>TCAAACTTTACTAACAGCCAAGTAATATAAATCAGATAACTTACAGGCAGAGATACAGAGCG<br>TGAGTAAGTTTGATGAGCAGAATGCTCATAGAGTGGTTCTGTGACTGAAGTATC[T/G]GCCT<br>CCTTATCAGACGAGCTTGAAGGCAACATGGTATTAGGAATTGGAAAGGTTGCAGATTTTTTC<br>AAGCACGCCATATTTACTTTTGTCGCTTGATCTTTCATTGCTTTACATATTTTTTCCTCATTCA<br>CATTATAGATGTCACTCCCCTCAGAAGCAAGTAAAGATTTCTGAGCATCT |
| >Gm03_40676856 | TGATCTTTCATTGCTTTACATATTTTTTCCTCATTCACATTATAGATGTCACTCCCCTCAGAA<br>GCAAGTAAAGATTTCTGAGCATCTTGAATGTGTAATGACTCACTAAAAGTCCTTCCAAGATT<br>ACTTATGAAGTTGTCGTCATGCACAACATTGGTATTAGAGCACGTGTCCATCAA[A/T]TGCAT<br>CAGGTACTAAGAGGCAACTAAAAAAACAACAATCAGATCAATGAGAATAAATAACACAATTA<br>TCACTAATCTACATAATAAGCATTAAAAATTAAAACATTCCACAGTTATGTTTCATTATTAATA<br>CATTGTGGACCAAAATTTAAAAAAAAAAGTTTTAAAATGATGACAGATG |
| >Gm03_40678154 | CTTCATACATTACTAACATAAGTCGGAAAGCAAATGATACCTAAGCTTGAAAGTTGAACAAG<br>ATTACCAAAAAAATATACCTTATAAAACGACGTTTGGAGCTGCAACTACAACACTATCAAAA<br>CAGGAGCAGAGAATAGCAACCAAACACAGAAAGAACAACAATAGCAAACCCTCGA[T/G]AC<br>CGATCCGCTGACGAATTAATCACAGCTCGCTCAGAGCAGAACCAACAACAACGACGACCAA<br>AAGAGAGCGAGAAAAGAAAGAGAAGGTGGAAGAAAACGAAAGACCTAGTGTTAACTAAGAT<br>TACCACGCCGATCACTTTTTTCAAGATTTTTCAGACGATGAAAAGAGGATCCACCA |
| >Gm03_40678493 | CGATGAAAAGAGGATCCACCATGGAAAACGGTCAAAGAAGGAACTAGACGGAGATCAACG<br>GGCACCGAAGGCATTATTCTATGCTCTTCGAAACCCCCTACGACTCACACGCCCAACAAAA<br>TGAAACCTAAACACAACCGCGCTTGATTGGAGATCGCACGCCCTAACATGAAAATGAT[G/A]<br>GGATCAGATTCAGATTCAGATTCGGATTCGGATTTCACTTTAACCCATAGAAACGATCTATC<br>TGTCTATCTATCAAATCAATTTCCCTTTTGAGTAACAAAAATCGACACAACGGAGAATGGAG<br>AGGAATAGGGGATCGGAGAAAAAATGTGTCGGGCGAATAACGAAACTGGATTAGGT |
| >Gm03_40678603 | GCCCAACAAAATGAAACCTAAACACAACCGCGCTTGATTGGAGATCGCACGCCCTAACATG<br>AAAATGATTGGATCAGATTCAGATTCAGATTCGGATTCGGATTTCACTTTAACCCATAGAAA<br>CGATCTATCTGTCTATCTATCAAATCAATTTCCCTTTTGAGTAACAAAAATCGACA[C/T]AACG<br>GAGAATGGAGAGGAATAGGGGATCGGAGAAAAAATGTGTCGGGCGAATAACGAAACTGGA<br>TTAGGTTGATGTTGTCCAGATAGAGGAGAAAAAATGGACTTATATATAGGAAGAGAATCTAG<br>AAGGTCAAGGAACCTGTTGTATTGTCTCTCTGTTAACGAGACCGAATCTCCAAC |
| >Gm03_4 | TCGGATCACAATTCAAAACAAGGCATATTAAAAAACGGCATTTATATTATTTAAAAATAAAGC |

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| 0682560 | TTTAATTTTACATCTACACCCTCAAAAGCAACAAAAAGGAAAATAAAACCCTAATTTAAAAAT<br>GCGAATCAAATCGGGGTCAACAGAAAACCCTAATCGAAACACAGGAAACAAAA[T/A]GAATC<br>AAGAGCTGGTGAACTTGGTGACGGCCTTGGTACCTTCAGAGACAGCGTGTTTGGCCAACT<br>CCCCAGGGAGGACCAAACGCACCGCCGTTTGGATCTCCCTGGAAGTAATGGTAGGCTTCT<br>TGTTATACCTAGCCAATCGCGACGACTCCTGGGCGAGCTTCTCGAAGATGTCGTT |
| >Gm03_40683015 | CCACGCTCTTCTTTGTTCTCTTCTTCTTCTTCTCGCTTCCTCCTTCCTTCGATATCTTCTTCT<br>CGGCCTTGGGCTTCTTCTCCGCCGGAGCCTTCTCTGCGGGCTTTTTCTCCGCGGGCTTCTT<br>CTCGGCCTTTGGGGGAGCCATTGGTTGGTGAAGAGGGAAAGGAGAGGGTCGGTTT[T/G]TT<br>ATGATGGGAGAAAAAAACTGAATTAGATAGAACGAGTGAAGGAACAGAAGAATGTGTGTGT<br>ATATATAGGAAGAGAGAAAGCTTTTGATTGGAAGGGGTTGAGTCACGCGGATCGGTGACGT<br>GGCGTCTTGGATTGACATTGCGTTTTTTCAGCGCCCAAGGATTGCTTCCGTCTTTT |
| >Gm03_40685818 | AAATCTAGGTCTCGCATCCTTTACATGTAATTTAAAGCTCAAACAAATTCCTCGATGCGGGC<br>TTCTGAGATTTAGACTCTGAATAGCAGGGGAAATCAATCTCTGCTGAACACGGGAAATGAG<br>ATGTTGGCTATAACCTCTGCTCGCAACACTTTGAACTTGAATTTCCGATGAAGAAT[G/C]ATG<br>TCTTATCTAGTACCTGTCAGGCTGTCACAGCAGGGGAAAACATGAGACAAGTCAAACGGGT<br>AATAAAAAATAAAAAATGTGAAAAAGTTTCCTCAGTTGCATTCAGGAAAACTGTAAAAAAAG<br>ATCTCGCAATAAAGAACAGCATAACACTAAGACTAATCACATAACGGAATGTCA |
| >Gm03_40689982 | TCAGGAAAAAAACAACAAAAAGTTCTCCAAGCTGGAATGATAAAATTAGCCTATTTTAATTTG<br>AATAAAAAGACATAAAACAAGAAAATAATTTCAACCTATTTAAAAAAGCAACATAAAATAATA<br>TAAAAAACCATTACACTCTTTCTAATAGAAAGGGTGAGAATATAAAATTATAC[T/G]AGATTAA<br>AACATTTGATATTGGATTGTGCATGTGCTATAAGAGGCAGGTAAATTTGATATTGCAGGGAT<br>GACATATTTGAAATTAAGCACAGTTTGTAGAACATGCATGAGCTAAGAGGCAGCTAAAGTAA<br>AATGTTTTTTTTTATTCCTACATAATATTGATAATGCAGCCTTTTTTCA |
| >Gm03_40690032 | CTATTTTAATTTGAATAAAAAGACATAAAACAAGAAAATAATTTCAACCTATTTAAAAAAGCA<br>ACATAAAATAATATAAAAAACCATTACACTCTTTCTAATAGAAAGGGTGAGAATATAAAATTA<br>TACAAGATTAAAACATTTGATATTGGATTGTGCATGTGCTATAAGAGGCAGGT[A/T]AATTTG<br>ATATTGCAGGGATGACATATTTGAAATTAAGCACAGTTTGTAGAACATGCATGAGCTAAGAG<br>GCAGCTAAAGTAAAATGTTTTTTTTTATTCCTACATAATATTGATAATGCAGCCTTTTTTCAAG<br>CAAACATCTTCCATTGGTCCGTCAGTTAAAAATCCTTGACGTGCATCA |
| >Gm03_40760791 | TCTATTGTATGTCAAAATAAAGACCTGGCTTCCTTCTCTACTGAAAGTTACACAGTGTGGAT<br>TTCCCATGCTGACACAGGTCACATGCCAGATAACTCCATCTACAACTAGTTCTGATTTAACA<br>ACAGCATTATCCTTATTTGCATGTAATTTAGTAGGCACATCTGAGGCTTTAAGAA[A/C]TGGT<br>TCCCCCATATCAACTCTGACCTGAAACAGATAGCATTATTGTCTATCAAGCTGAAGAAAGAG<br>AACCAATACCAGATAAGAAACAAAAACAAAATCCCTTCCTGACGTTAAACCAATTAAGGCAC<br>CTTAAAAGCAACATGGGTCGATGTCTTTAAACAATATCACATATTAATAAGT |
| >Gm03_40761867 | ACAATTCGTAAGAAGAACTACCTCAGGCTCACTACCATCAGAGTTAAAAATCCTCATGGTAT<br>AATCGGTGCCACTGATGCCAGGCAAGACAAAGATAACTCCGTCAGCTCCAACGCCGAAGTT<br>CCGATCACACAGTTGCACCGCTTTCTCAGCACTGATCTTGGGCTCGGAGGAGTCTC[A/G]G<br>TTGTCAATCTATTAAAAAATCACGCGTCAAAAGCGAGCCATTATTTATTCGAAAAGGGAAAA<br>GCGAAGCGGAACGTGGACTCACCAAAACGAAGTCGTTTCCGAGGCCGTGGTACTTGGCGA<br>AATGGAGGAAGCCGGACTCCTTGCGGTTGAGGAAGGAGGCGGATGAAGTTTTGACGG |
| >Gm03_40771977 | TGTAAACAATGAACTTGTTCTTTTGTCATGTTCTATCATCCAGTTTTGTTCCATCAACATGAC<br>AGAACCTGAAATGATATTTAATGCAATCCCTTACCTTTATAATTTCTCTAATATTCCCCTGCA<br>GAACCTCATAATGCAGCATGTTGATCATTCTGCTGGCGATTTGATTGACCTCC[A/C]GCAAG<br>GGCTCCTAAGGTACGACCCTTCAGAACGGCTTAAAGCTAAGGAAGCATTGAGACATCCCTT<br>CTTCTTCACAAGAGATACTAAAAGATATGGCTACCCTTTATAAGTACCCCAAGCATAATGGC<br>TGGGAGGAGAGAAAACACAGTTGAGAATGAATTGCATAGAATCTCATACTTG |
| >Gm03_40785291 | GGCCTTACCCATGGATTCTCTTCCCAAATTGCGCCACCCTTCTCCATTTCCCACTCCCTTAT<br>CCTCTTCCCTCTCCTTCCGCTCTTTACCGCCACCCCATTTTCCTTCGTCGTCGTTTAGGTTA<br>CCCTCCATCAGAGCCTCCTCCTCACCCTCCCAAAACGACCCCGCTTTTCGCACCC[A/C]AAG<br>AAACAAGCCCTCCCTCCCCCCCCTCCTCCAAACCCTAACCTCCTTCCTCTCCCCCCTCCTC<br>GAAACCACCTGCATCGTCATCGCCGCCGCCGCCTTCTTCTTCATGCGCTTCCACCACACGC<br>CCGCCGTCATCGCCGCTCCGCTCACTTCCCCCGCCGCGGAAACCGACACCGCCTT |
| >Gm03_40785299 | CCATGGATTCTCTTCCCAAATTGCGCCACCCTTCTCCATTTCCCACTCCCTTATCCTCTTCC<br>CTCTCCTTCCGCTCTTTACCGCCACCCCATTTTCCTTCGTCGTCGTTTAGGTTACCCTCCAT<br>CAGAGCCTCCTCCTCACCCTCCCAAAACGACCCCGCTTTTCGCACCCCAAGAAAC[T/C]AG<br>CCCTCCCTCCCCCCCCTCCTCCAAACCCTAACCTCCTTCCTCTCCCCCCTCCTCGAAACCA |

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| | CCTGCATCGTCATCGCCGCCGCCGCCTTCTTCTTCATGCGCTTCCACCACACGCCCGCCG<br>TCATCGCCGCTCCGCTCACTTCCCCCGCCGCGGAAACCGACACCGCCTTCACCCAGG |
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| >Gm03_40824686 | GATATCGCGAGTGGTATAATGTTCTTCTAGCTAAGGTTGGATCAGTGAGGGACTTGACGGC<br>GACGGAGTACGTGACGTTTACCCCTGAGGATATTGAAAATTACCTCGTTAACCTCTTCTTTT<br>TTGGAACCTCATCCAGTGCTGTATCGTCCTCGTCGGTATCGTCGTCCCCTCTCCGG[G/A]GT<br>TGGAGTTAAGTGCACAGTTTGAACGGCGAGTTTTTTTCGCCCTCATTTTTCTTGATTGTAGT<br>AATGAGTATAGAGTTTTGACATAGACAACAAAAGCTATACCGACTTTTTCAGTTTTCTGCGT<br>GTGGTACACGTAAGCATGACTTCATCGTGTAGTTTCCACTTTTTACTTTCAGAC |
| >Gm03_40843491 | TCTTCTGCAAGAAATGGCTACATGGAGGTTGTCAAGGCCCTTGTGAGCAAAGAACCAGAAA<br>TTGCAATGAGAATTGATAAAAAGGGGCAGACAGCACTCCATATGGCAGTTAAAGGACAGAA<br>TCTTGAGTTGGTGGATGAGCTCGTGAAATTGAATCCATCTTTGGCCAATATGGTGGA[T/C]A<br>CCAAGGGGAACACTGCACTGCATATAGCAACCCGGAAGGGTCGTCTACAGGTAAAAAAAC<br>TGCTTTCCTTTTCTGTTTTCTTTCTTAAGAAAGTAACTGATAATGTATTGTTCTATGTCAACTG<br>AACTTGTGCTTTTTATTTTAGACATTAGATTCTAGAGTTCCTCATCATCCAAGAC |
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| >Gm03_40870653 | GAACCCTTCGTTCTGCGTCCTGGACTCCCACTACATCCTCCTCCTCTTCACCTTCCGCGAC<br>CTCTCCCCTCCCCCCGTTGCCTCCTTCAACCGCTCCTACCCCGTCACCTCCCCCAACGAAT<br>ACTCCCTCTTCTTCGCCAACTGCGCCCCCGAAACCTCCGTCACCATGTCCGTCCACA[T/A]C<br>GAAGCCTACAATCTCGACGCTGACGGTTCACGCGACTACCTCTCCGCCGGCCAAACCCTC<br>CTCCCTTCCCTCTACTTTCTCTTCTTTTTAACCTACCTCTCCTTCTTCTCCTTCTGGCTCTAC<br>ATCTGCTACACCAACAAACTCTCCGTTCACCGCATTCACCTCTTAATGTCTCTCCT |
| >Gm03_40874471 | ACATAAGTGAAGAAAAAGAAACCAAAGTGATAGATAGCTATATCACTAATAAATTCTTCTCTC<br>TGGATCATAAATAGGAAGAAAATATATGTAAAATAAAACAAAAAAGTTCAAACCTTTGATTAA<br>AAATCAATATTTTTCGTCGACAACATCTACACTAGCGGAACAGGACAAGACCC[T/G]TCGGA<br>GAATCCCAGACAAAGCAGAACACGAGACCTCCTTAGCCTTACTCCAAACCAAGCAGCACTT<br>GGTTTTCTTAGCCTTATCATTAGGCTTTAAAGTCTCGTTCCCAATATCTTTCTTCTTCTTCAT<br>CTTTGCCCTACCAAAACATTTGTGGGTTTTCTCGTGCTCGTTCTCTTCTTC |
| >Gm03_40885382 | ACTGGGCAAGCACATTCTACGATGCATGAGGCGTTCCAACAGTTGAAAACCTTTCCCTTTC<br>ACACTTTTCCTTTTTCTCTCACTTTCAGTTCTCACGAGAAACCTACGCCCCTTCCGCTCATC<br>CTAGAGCTCCCACACCCAACAAACCCCGATTTTTCTCAACACACACTCACACAATC[T/G]GT<br>TTTTCACTCCCTCGATTTCGCGATCTCGCAGTCGATTCTCCCTTTCCTTTTAATTATAAACGC<br>CGTCGTTTGCTTCCCCGCGAAGTAGTTAGGGTTTCTTGTTGGCACAATTATTGGATCGCTG<br>CATCGATAATTGACGGGAGAAACAATTTTTTTTTTAATCGAGAAATTGTTTTCTC |
| >Gm03_40886333 | TGTGGAATTAATCAGTTCCACTTTGCGATTGGAGCAGGGTTCTTTGACTGGAGAGAGTGAA<br>GCTGTGAATAAGACTAACAAGCGTGTGGATGAGGATGCTGATATTCAGGGGAAGAGGTGTA<br>TGGTTTTCGCAGGGACCACTGTTGTTAATGGGAATAGCATATGCTTGGTCACTCAGA[C/A]T<br>GGCATGGATACCGAAATCGGGAAGGTGCATATGCAGATACACGTAGCCTCGCAGAGCGAG<br>GAGGATACCCCATTGAAGAAGAAACTCAATGAGTTTGGAGAGAAGCTGACCTTGATAATTG<br>GACTGATATGTATTTTGGTTTGGCTCATCAATGTTAAGTACTTCCTTTCTTGGGAGTA |
| >Gm03_40889026 | CTCCTAGGGAGGAAGTATACCAAGCAATTGAAGACTGCAGAGATGCTGGAATTCGTGTTAT<br>GGTTATTACTGGAGACAACAAGAACACCGCTGAAGCTATATGCCGTGAAATAGGTGTATTTT<br>CTCCAGATGAAGACATTAGTTCTAAAAGTTTAACAGGTAGAGATTTTATGGAACTG[T/A]ATG<br>ATAAAAAGGCATATCTGAGACAGCATGGCGGGCTTTTGTTTTCAAGGGCTGAACCTAGGCA<br>CAAGCAAGAAATTGTGAGGCTGCTCAAAGAGGAAGGGGAAGTGGTGGCCATGACTGGGGA<br>TGGTGTTAATGATGCTCCTGCCTTGAAGCTTGCAGACATTGGTATTGCAATGGGCA |
| >Gm03_4 | TTAACAGTCACTAATCTTATTGGTTCTGATGCAACGACTCTGCAATTTCAATTGGCTGTAGTT |

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| 0906651 | TCAGTAGTCAGAATTGTTTTATAACATCTTTGCTTGTAAGCTGAGTTTTGGTTACCTTGGTTC<br>TTGCCAGCCGATCGAGATCTCCTGTCAGAAGAGAACGAAGCCCAGTTTCTGAA[A/C]ATAGA<br>TCACAGAGTCGTGAGCCCTCCAAGATAAGGAAGCATAGTGCATCACCTGACCAAAGCAGC<br>CCACGGAAGAGAGGTGACACATCTCCTGGCAATGATAGGTTGGCCACTCATCAAGATGGG<br>TCTGACTACAGTGATGGTCCTAGAGGGAAAAGTAGAAGCCCTGCTAGCCCTGCAA |
| >Gm03_40915539 | ATCACCGATTCAAGTTAGGTGGAATCAACTTGAGAAGACTTTGGTTTCCAATTGGTAGGCCT<br>TGGTGAAGAATGCTGGCCAACAGAGGTATGTAGCCATTATGCTGCTAACAGTTGCTGCACC<br>AATCATCATATTCATCACCACAATCTGTAGTTGAATTGCTTCCAACGGCGATGCCC[C/T]ACC<br>CATAATGAGACCAGTCATTGCCCCAGGAAGGGATATTAGACCCACTGTTTTGGTGTTGTCC<br>ACCACCGGAGAAAGGGCCAATATCAGAGCCCTTTTCACTTGTTCATGCGTTGCTTGTCGTG<br>GGGTTGCACCAAGAGACAATGCTGTCTCAACCTGAAATACAAATTAATACACTCT |
| >Gm03_40915692 | TTGAATTGCTTCCAACGGCGATGCCCCACCCATAATGAGACCAGTCATTGCCCCAGGAAGG<br>GATATTAGACCCACTGTTTTGGTGTTGTCCACCACCGGAGAAAGGGCCAATATCAGAGCCC<br>TTTTCACTTGTTCATGCGTTGCTTGTCGTGGGGTTGCACCAAGAGACAATGCTGTCT[T/A]AA<br>CCTGAAATACAAATTAATACACTCTTTCATTCATCCCTCTCAATTTACTCATCCACACCTATT<br>ACAAATAAATGTTAACCCTAAAGCCTATCAAATCACTTGTCGTGTGTGTTTCAACCTTATTAT<br>GCATGAAAAAAAATATTTCACTAAAAATGATTTGTGAGATTCTAGTCATTAA |
| >Gm03_40942035 | ATTACTAGGGCATCCAAATCAACACACTAATAGATAGATTTGGAATTGGACCTTTCGGCTCG<br>GGAATTGCGCTTCTCTTTCTCGGACAACTGGACGGAAATGCCGAATCGCTCGGCGCGGCG<br>CATTTTCTTCTGAATATCGGAGAGCGGAGCGTCGTTTCCAGAATCGGGCGGCGGGGA[A/T]<br>GTTTTGGCGTCGGAGTCCTTAGTGTCGGCGGCGGCGTCGTCCTCGGTGGCAGGGATTGGA<br>TCTGGTTCGGTGGGGTCTAGGGTTTTGTTAGGGTTTTCCTGTGCAGGGTTGTTATTGTTGT<br>CGGTAGGGGTTGTCATTGGAAGCGGGAGATGGATCGATCGAACGATTAACGATTCGGAA |
| >Gm03_40951123 | ACAAACACGTTTTGAGACGCCGTTTCCACGACCTTGCGATTCAGCGCAGCATTGAAGGCGA<br>TTTTTTACTAGCATGGCAGCAATAATGTTGACGACTATGAATATTCCTCTGCACACTTCGGT<br>TTGGGTTAATTCCCGGCGGAAGAGTTGGTGCTGCTACGCCTCACTTTCGCAGCCAG[G/A]T<br>AGGAAGGAGATCCGTCTCGGTTTGCCCAGCAAAGGTCGCATGTCCGCTGACACCCTCGAA<br>CTTCTCAAGGTCATTCCAATTTCGACTCGATTCGCCACTGTTATCTTCTACATTCTACACTAC<br>TAACTAACTCTGCATTCTTTCTTCTGTGTGAAGAATTGTCAATTGTCAGTGAAGCA |
| >Gm03_41007691 | CAAAAAAAGAAGCCCACTTAGAAGGACTCTTTAAATATATTTATATTCAACGTATAAAACCTT<br>TGATGCTGTTCTGCCAAACCCCAAACCCTAGTTTTGTCAGTAGCACACTTCACCCATGGCA<br>GTAGCAGCAGCTCGCCCTATCGTCTCCGTCCAAACCCTAGAGGGCGATGCAACCC[T/G]TA<br>CCGTTCCTCTTCCCGACGTCATGAAAGCCTCCATTCGGCCTGACATCGTCAATTTCGTCCA<br>CTCCAACATTTCTCGCAACAGCCGCCAACCCTACGCCGTCAGCAAGCGCGCCGGCCACCA<br>AACCTCCGCCGAGTCCTGGGGCACCGGCCGCGCCGTCTCGCGTATCCCGCGAGTCCC |
| >Gm03_41007937 | CAACATTTCTCGCAACAGCCGCCAACCCTACGCCGTCAGCAAGCGCGCCGGCCACCAAAC<br>CTCCGCCGAGTCCTGGGGCACCGGCCGCGCCGTCTCGCGTATCCCGCGAGTCCCCGGCG<br>GTGGTACCCACCGCGCCGGCCAGGGCACCTTCGGAAACATGTGCCGTGGCGGCCGCATG<br>T[G/A]TGCTCCCACCAAGATCTGGCGCCGCTGGCACCGCAAGATCAACGTTCAACAGAAGC<br>GCCACGCCGTCGTCTCCGCCATCGCCGCCTCCGCAATCCCCTCGCTCGTCCAGGCTCGCG<br>GCCACCGCATCGAGTCCGTCCCGGAACTCCCCCTCGTCGTCAGCGACACTGTCGAAAGCG<br>TCGA |
| >Gm03_41008189 | CGCCATCGCCGCCTCCGCAATCCCCTCGCTCGTCCAGGCTCGCGGCCACCGCATCGAGTC<br>CGTCCCGGAACTCCCCCTCGTCGTCAGCGACACTGTCGAAAGCGTCGAGAAATCCAAAGA<br>AGCCGTCAAAATTCTCCAGAAAATCGGCGCATTCACAGACGCGGAGAAAGCTAAACTCA[C/<br>T]CCACGGAATTCGTCCCGGGAAGGGAAAAATGAGGAACCGCAGGTATATCTCTGGCAAGG<br>GTCCTCTTATAGTGTACGGAACAGAAGGTGCTAAGGCCATTAAAGCCTTCAGGAACATTCC<br>CGGTGTAGAGGTGGCAAACGTTGATAGGCTCAACCTTCTGAAGCTGGCACCCGGTGGCCA |
| >Gm03_41008255 | GGAACTCCCCCTCGTCGTCAGCGACACTGTCGAAAGCGTCGAGAAATCCAAAGAAGCCGT<br>CAAAATTCTCCAGAAAATCGGCGCATTCACAGACGCGGAGAAAGCTAAACTCAGCCACGGA<br>ATTCGTCCCGGGAAGGGAAAAATGAGGAACCGCAGGTATATCTCTGGCAAGGGTCCTC[G/<br>C]TATAGTGTACGGAACAGAAGGTGCTAAGGCCATTAAAGCCTTCAGGAACATTCCCGGTGT<br>AGAGGTGGCAAACGTTGATAGGCTCAACCTTCTGAAGCTGGCACCCGGTGGCCACCTTGG<br>AAGGTTCATTATTTGGACCAAGTCCGCATTTGAGAAATTGGACTCTATCTATGGATCCTT |
| >Gm03_41008442 | TACGGAACAGAAGGTGCTAAGGCCATTAAAGCCTTCAGGAACATTCCCGGTGTAGAGGTG<br>GCAAACGTTGATAGGCTCAACCTTCTGAAGCTGGCACCCGGTGGCCACCTTGGAAGGTTC<br>ATTATTTGGACCAAGTCCGCATTTGAGAAATTGGACTCTATCTATGGATCCTTCGATAA[T/C] |

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| | GCCTCCGAGAAGAAAAATGGCTACTTGCTTCCCAGGCCCAAGATGATCAACTCTGACTTGG<br>CCCGTATCATTAACTCCGACGAGGTCCAGTCCGTGGTCAGGCCCATTAAGAAAGATGTTAA<br>GAGAGCACCTCTCAAGAAGAACCCTCTCACGAACCTCAATGCGATGTTGAAGCTCAAT |
| >Gm03_41008459 | TAAGGCCATTAAAGCCTTCAGGAACATTCCCGGTGTAGAGGTGGCAAACGTTGATAGGCTC<br>AACCTTCTGAAGCTGGCACCCGGTGGCCACCTTGGAAGGTTCATTATTTGGACCAAGTCCG<br>CATTTGAGAAATTGGACTCTATCTATGGATCCTTCGATAAGGCCTCCGAGAAGAAAA[C/T]T<br>GGCTACTTGCTTCCCAGGCCCAAGATGATCAACTCTGACTTGGCCCGTATCATTAACTCCG<br>ACGAGGTCCAGTCCGTGGTCAGGCCCATTAAGAAAGATGTTAAGAGAGCACCTCTCAAGAA<br>GAACCCTCTCACGAACCTCAATGCGATGTTGAAGCTCAATCCCTATGCTAAGACCGC |
| >Gm03_41063028 | CATAAGATTTGATGATTCAGATTACATAGTTATCTATGATACACATGTTTTTTCCGCTGTGGT<br>TTGCAAATTTTATATCGTAATTTTAGGAATTGATGTTATCACAAGTAAAAGAACTCTTACAGA<br>TGATGAATTTGTGATGTTAATTGTTTTTTTCTTCTTTTGAATCTTCTCAGGGT[A/C]AACATAT<br>GATGGTTCCAATGCAAGGCCCGGAGTAGGTATCAAGTTTATTATTGACCCTCTTGTTGTAAC<br>GTATGTTTTCTACGCCAGTTACCAAGTGCTCACGGCATATTGAATGTCTTTTTATGTTATGTG<br>AATACTGACAGGAGATGTTGGTTCTTGTGTCCGTTTTTTTTTTTAAAT |
| >Gm03_41082727 | ATGATGTAGAGACAAGAAAACAGACTTGATTCCTAGAAACAAATACAGTGGTCTACATTAGT<br>TCTCTGCGCCATTAAGAAGCCGCTCCATTACTGTAGGTTCAACATATCTAACTACAACACAA<br>TATCCGTCACGAGTTTATCACAATTTCCCTGAGGAACTGCTTCAATGTTCATGAC[T/A]CATG<br>AAACTTGATAACACAAAATACCTTGACCGAAAAATCGTAACAATGAAACCAACCATATAAAA<br>TTAAATCCATTTTAGCCAAGATATCAAAGTGTAGGCAATGATTACCAATACCTGTGCCGCAT<br>CTAATGATGGTTCCTCCTCCACAAAACTCCAATCTTCTTCATCATGTTTGTA |
| >Gm03_41095513 | GTGAAAAAAGGAAGGGGGGGATAATTAATTAATTTATATTGCTTTGAATCAAAATTGCAACC<br>CGTACCAAGTATCCACGAAAAGCTGTTTGAATTTTGATAGCTGCCACTTCATCCTTTGGTTT<br>ACCAGCATAATGAGCAATTGGGGCAGCTTCAACCCTAACAGGTTCTATCTGAACA[G/C]AAG<br>GAACAGGTTCCTCGGCATCCATGGCAGTTGCAACTTCAACAACATAGTCGTGATCATGACT<br>GATTTCATTTTCAATATCAGTTAATTTAATCGCTTCTGGTGGAGGAATAGGTCGCGGTGGTG<br>GTGGTGCTTTATGAGCTTCTGAGTATGAGACTGAAGTCTCCAATTTTTGCTTCC |
| >Gm03_41170229 | TCAGAGATTCCTGTGTTCACATAGCCAATCCTCTCACCAAGTGCAAGTAGTTCCTGGTCAAA<br>CCAGTCATCAAAATAATTAAAAAATCTGAGTGCATAATATTAATTGCAACGCTAGAAACAGTA<br>ATAAATTAATAATCACCTCATAACTCATGTTATCTACGTCCATCCTCATGTCTC[T/A]GTGCTG<br>ATCTAGCATGTTCCTGGAACCATACACTGATGCACGCTCAACAACCATGAAACCCTGAAAG<br>CCAACAAAAAATACAAAGAAAAAAAGTAAATGAGTCTCAGCCAGTGGTAGTAATGCCAGAA<br>AGAACAATTTTGATGTTCTTAATGAACAGCGCAACTAGTTCAAAAGAATATA |
| >Gm03_41171468 | TTCCGCAAAGAACCCTCACCCTTTATTGAAAGGCCAGTACCTCTCAATGTGGGTGTCATAGT<br>ACAATAATGATCCCAGGGAATATATTGACAATCAATATTTGGCTTCTCCTGCCACAATTCTG<br>AAGATATAGGAAGATCAGTTGAACTCCCAGCATTAAAGTATCTACTAGTACTGCC[A/G]CCC<br>TCATAGACTGAAGGAATTCCAGGGCTCTTACGCTTGTGATGCCCTTGTCCACTTCCCATTGT<br>AAGATCAATAAAACCACCATCAACATGAAATGTTTGTCTGTCATAATTGGAGGAAGAAGGTT<br>GGTGTGCATAATTTTCCAACGGTATAAACAATGATGGTCCAGCACTAGACAAA |
| >Gm03_41184564 | TTTAACAAATGGATCAAGCTGTCCACTGATCTGTAACCGTGGTGGACTCGACAAGACAACA<br>ACAATATTCAGAACATTAACAAGACCACACCACACCATGAGCGTCATCGACATTCTCACCAG<br>AGTTGATTCCATTTGCAAAAAGTACGACAAATACGACGTCCAAAGCCAAAGGGACT[A/C]TA<br>ATCTCTCCTCCGACGATGCATTCGCCAAACTCTACGCCTCCGTCGACGCCGACATTGAGGC<br>CTTACTTCAGGTCACACTTCCCTTCACTTTTTTTTTTCAAATTCATTACTAAATGAGGAAATTT<br>GTGCCCTAATTCGTGAGAATTATCGATTTTTTTTATTCATCTCCCAAACATGTG |
| >Gm03_41207607 | AAAGTTTGCTTCCTTAGGCTCATCAATGGGGTTGAATCAGTTCACTGTAGGCCATCAATGAA<br>GTCCTTTCTGACTATAATTAATTAACTCATATCATGACATATCTAGTGTGGTCTCAATTCATG<br>TGTAAAATAACACACCAAATTATTGGGAATTAGTTGGTGAAGGTTAATTGGGAC[A/C]AAGTT<br>AGAGAGCGAGTTCGAGATCAGAGATGCATGGTTCTTTGTGCGTGTTGTTAGCGGTTCGGAG<br>GGTAAAAGGGACCCACTGCATGTTTGAGATGAAAGAAGAAACAGCTAGTTCCCCGAGCAGT<br>GCATGTTCTCTAAGTAGTAGTTGTTCTTGTTGGTTTGTCTTCTGTCTTAACCT |
| >Gm03_41223681 | TATCAGCTATTTGTGAGGCTTTGAGGAGTTTGATGAAGGTTGTGAATTGTCCTGCTTTCTCA<br>AGCACTTGGGTGATGTTGGTGGGTCCCGCTGGTGCCGGTGCTACTTGGGCTGAAATTGTTT<br>GGATGAAGATGTTGAGGAAGAGGAAAGGGAGGAAATTGAATAGCTTTGTCATTGGT[A/C]TT<br>CCTTGTGAGTGAGGAAATTAAGAAGAGAAGACTAAGATGTTTGTTACAAGTGGAAGGAAGA<br>GATGTGGTGTCGTAATATATATTAAGAAGAGGGTGCATGGAAATTTGATTGTTTAAAAGGTT<br>AGGTGAAAGGTTGCAATTAGTATAAGGTAGCAAGAGGCCCTCATGCAATCAATTT |

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| >Gm03_41228284 | TAGGCCTTGGTTTGAGTTGTTCAGCTGTGAATTGATTCTATCAGCTATTTGTGAAGCTTTGA<br>GGAGTTTAATGAAGGTTGTGAATTGTCCTGCTTTCTCTAGAACTTGGGTGATGTTGGTGGG<br>GCCCGCTGGTGCTGCTGGTGTTTGGGCTGAAATTGTTTGGATGAAAAGGAAAAGGA[A/T]AA<br>AATGGATTAGCTTTGCCATTTGTGTGAGTGAGGAAGCTAAGAAGACTAAGATTTTTGTCACA<br>AGTGGAAGAAGGGGATGTGGTGTTGTGTATTTATATTATATGGTGTTAAGGTTTGAGGGTG<br>AGTGGAAATTAGATTGGTATAAAAAGTTAGGTGAAAGGTTGCAATTTGTATAAGG |
| >Gm03_41230797 | ATTGGCAGTTCCCATTCCCATTGCCATCGCCAGCGCATATATCAAATCGAACAGCCGCAAA<br>CCCTTCCTCTGAACTCTGATCCGCACTGGCACTGAAGCCATTGCTGTACCTTCCAAACCCT<br>AGCGTAGCCACGCGCTGAATTGCGATACGATGATCGTGCGCACATGAGGCGGCACGG[G/A<br>]CCGGCACGATGATGAACACAGCCAACGGCACGATGATCTCACCGTCGTCTTCGTCGGGAA<br>CGGCGGCGCAGTCGCCGGGACTGAAGACCTATTTCAAAACCCCCGAGGGAAGATATAAGC<br>TTCAATACGAGAAGACTCACCCTTCCGGTCTTCTTCATTACGCCCATGGCAAAACCGTTA |
| >Gm03_41231547 | TGACAAAATGGAATTGTCTTAGCATATGAGTGAATTGTTGGTTTGATTGAATGAGCAGGTAA<br>CCCTGGCACATCTCAAGGACAAGCCTGCGCCTTCTACCCCAACCGCTTCGTCATCGTCAAG<br>TTTCAGTGCCAGCAGTGGGGTACGGTCGGCGGCAGCTCGATTGCTGGGAGGAAGCA[G/C]<br>TGGTAGCCGGGCACTTAGTTTTGTTGGAGGCAATGGTGGCAGCAAGAGTAATGGAGGAAA<br>TACTAGGATTAGTTCCATTGGTGCTTCGAGTACAAGTAGTGCAATGGCGAATCCGAATTTTG<br>ACGGGAAAGGAACATACTTGATATTCAATGTCGGGGATGCAATTTTCATTAGTGATTT |
| >Gm03_41234338 | GATGATTTAGTTCAAGTTTGGAGCATGGAAGATCGCAAGGTTGTGGCATGGGGCGAGGGA<br>CATAACTCATGGGTAAGTTGCCTGACAATTTTTAGTTGTGTGCTTGTAGCAAACTTTGCTAC<br>CGTAGGGTTAATGTAGTGTTTGTATCAAATGCCATGATCAGGTCAGTGGAGTTGCTT[A/C]T<br>GATTCATATTGGACATCACCAAATTCAAATGACAATGGAGAGACTGTTACATATCGTTTTGG<br>TTCTGTTGGTCAGGTGCTCAGAAAAATGTTTCATTATAATTTTTACTTTTTCTTTGTGTAGCTT<br>TTCATTCTAAGTAAAACTCATTGGTATACCTAACATGGATCTGTGGTAGCTTT |
| >Gm03_41236752 | AATAAGACATGTGTATTCATCTCTTCAACCATCTTTACAGTACAGAATCCCTTTTTGTTCCCC<br>TATAATTGTACAAAAACAACCTTTCTTTATCTTTTCACCTACAGGATTTGCTCAGAAGTTTCT<br>TGCAAGTCCAATATTATAATATGGCCTCACAGTTACAATACAACTGGCTTCGA[A/G]TCAGCG<br>GTCTCAATACAAGGAATGCGATACTTGTGTATTCTCGCGAGTACCACGGAGACAAAAAAGG<br>GTGTAATGTGCTTAAAGTATAGTCCATACATTATACTTTTATATACAGCCAATTAAACACCAT<br>CAATATAAAAGTATATTCTATGTCAACTCACACTCACATGCACTGCAGTG |
| >Gm03_41255346 | GCCGGCAGGGAAGGACAATTGTATCTCGGGGCTCTGACAAGCAAATAACACATTTTCCTTG<br>GTCATTCTCCGTTGAATTTCTAATACCATATATCTCCTGCAGCTCATACCTCATTCCATTCAC<br>CCACAAGATCTGCTTGACAACTTTCACCCGGAACTCTCCTTTCTCCTTCTCAAAC[G/A]TCGT<br>TTGCGTAATCTGAGAGTTTGTGTTACTAGATGTTGGAGATCTATCTGACTCATCATGATTAC<br>CAGGGGATGCGTCTGCCTTTACTGCTAGAGGGTAGACATCCTTTTCCACCCACCTTTCCAA<br>TAACTCAGACTCTTCAAACACTGAAAAATCAATACCAGTTCCAGCTGCCTGTC |
| >Gm03_41275788 | GAAAAGGAAATCGTGAGAAACGGGAGCGAAAACGAGTTGATTATAGTAAGAAAGCGCGTG<br>AAATCCGAAAAGGGCTGCATTGGCGTGAAAATGGTAGATCTAAAAGTAAAGGAGAAAACCG<br>AAATAAAGAGATTGGAAGGTACCGTAGCAATCGGGTCTGTGTTAGATTCAGAGAAAAC[T/C]<br>AGACACAGTGTCTCTAACGAAAACTGGAGGACTGCTTCGCTGATTTGCTTTTCGTCTTCGC<br>CCAATCAAATCAACACAACCCACCTATTTCTTTAATAATAAATAAATCACACATATATAATTTA<br>ATTTTACTCACAAACCATATTCTTTCGCAAAGTGTGGACATAAATAATAATGACA |
| >Gm03_41595526 | CCACCAGCATTGGAGAACATCATCAACTTCTGAGTATTATTATCATCTTCCTCCCCACTGTA<br>GATGTGATTATTGGCCCCACCAACAAAACTTGCATCACCAAACTCTGCAGGCTCCATGACA<br>TGGCTTATCTGGTTGTTGCAGCTCCCATCAGAAGAGCTGCAACTAGTGGCCGTGGC[C/G]G<br>TGGCTGTGGCTTCACCTCCAGACACAAAGATGCTGCTATCTTTGAATTGGCACTTGGGGTC<br>CATGAAACTCTCTTGTGCTTGAAACAAGGAATCAGCATTAGCAGAAGAGTTGTTACCACTCA<br>CAAGACTTGATGATGAGTAGGAAAAGGAACCGTGAGGGTGGTAGTATGAGATGTTG |
| >Gm03_41895733 | TGGAACTCTACCATCGAAGCAATATGTGCTGGAATGCCAATGCTTACGTGGCCGTTGTTTG<br>GGGATCAATTCTTCAATGAGAAGTTCATTGTGCAGGTACTAAGAATTGGAGTGAGAGTTGG<br>GGTGGAAACTCCTGTGAACTGGGGCAATGAAGAGAAAAGTGGGGTCTTGGTGAAGAA[G/C]<br>GAACATGTTTTGAAGGCTATACAAGTCTTAATGGATGAGGGAAATGAAAGGGAAGAGAGAA<br>GAAAAAGGGCTAGAGAGCTTGCGGAGATGGCTAAGAAAGCTGTAGAAGGAGGATCTTCTC<br>ACTTCAACGTAACCCAGCTAATACAAGATATCATGCAACAGTCCAACAAAGACTAGTAC |
| >Gm03_42001213 | ACCGGACTTAAATATGTCATTCTTGTCGTGAAAAAACTTAAAACTATATATTTGATTGCATAA<br>TGATCATTATTTTCATGTAACACTTCTCTTCAAATAACCAAGTATAATAACAGTGTTTCCAATA<br>TGAACATACAACAAAACCTCCATGCACGGGGATAATGGAAGATTGGAATAAC[G/C]CTGGCA |

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| | CCAACTGGCTGTGTTGACCGCAGCCATTATTAGTCGCTGGAAGCAACCAATATCTTCCCAG<br>ACCAAATCAGGATGCTTTTTTCTTCAACAAAAACATAAATAGCACGCCTGAGAATTTGCACA<br>AACTCCGTGTCCATGGTCTAAACTTTTGGTAATTGATATATACTAGCCTCT |
| >Gm03_42060956 | TATCCAGCAAAAGTCACGTGGTAAGTAAACAAGTCAACTCCGGTAAGTAAATCAGATCAATA<br>TAAAAGGATGTTCAATTACGAATTGCTTGGCCCGTATGCATTGGAAACCATAGCACACCACA<br>ATATTGCTCATAACTAGACCTAGATGTATACCACCAAACCGTATAACGTCGTACA[G/A]CTGG<br>CTATTGCTACAATATAGAACGTATACACTTCCTTTTACATTCTCCATGTGGAAAACTTTAACC<br>AAAAAATTGGCATCGAACATATTCCCTATTATTTTTTAAGTTTGACATCCTGTAATAATAGTTA<br>GCCTAACATTCATTTTCAATCACAAAATATAGCTAGTCACCAAACCCGG |
| >Gm03_42062804 | TAAAATCATATCAGTAATAGAATTCAAACTGTCAGCAGGACAAGGGGGTGTCAATCACATTG<br>ATGGACACCTAACAGAAAATAAGATGCAAATGAAACAAAAAGATCTAACCTCAAAAGCTCCA<br>CTGAAGCTCCATTTCAGCTGATTTGTCTTGAGTCGGGGGATCACAACAGAGAGAA[G/T]TGG<br>CATGGTTGGCCTATATTTTGCTATTAATCTGAAAAGTGCATGCGATGCTTTTAGAAAAGCCT<br>TACAGACACAAGTGGAAATGCAGGGAAGAAAGATTGATTTGGACAACAATTGATGCATAAT<br>ATTCATTTTCCAAGATACTAAATATGAACATGTTCATATCAAATTATTCGTTGA |
| >Gm03_42139098 | AGATGGCGGAGCACTTGGCATCGATATTCGGGACGGAGAAGGACAGGGTGAACTGTCCGT<br>TCTACTTCAAGATCGGCGCGTGCAGGCACGGCGACCGGTGCTCCCGGCTTCACACCAAGC<br>CGACAATTAGCCCAACATTGGTTCTGTCGAACATGTACCAGAGGCCCGACATGAACATG[C/<br>A]GCATTATCACCAACCCCGATCAGCCACAACCCCAATCCCTTGACCCCGACAAGGTGCAG<br>GATCACTTCGACGACTTCTACGAAGATCTCTTCGAGGAGCTCAGCAAGTACGGCCCCATTC<br>AGAGCTTGAATATTTGTGACAACCTCGCCGATCACATGGTCTCTCTCTCTCCACCCTT |
| >Gm03_42179109 | GGCAGAGCCACTGCAACAGGAAGCAGAGTTCGCCGCTACTCCGCGACCCTACCCTATCAA<br>TTTTCGTACTTCTTTTCGTAATTGCAGCGAAGAATGGCGAAGAGGAAGGAGCGGATTCAGA<br>ACCCGGAGCCATTCGATCCGTACGGCGCCGACCCCGCGAAGACGAAGAAGCGTTCGAA[C/<br>T]CCGCCGAAGCGGCACCAGCAGGAAGAGCAGTTCATTGCTCCCAAACTCAGCTCCAAGAT<br>CATGAAGCAGGCGCTGATCCAGCAGAAGGAGGAAGAGAAGGAGGAAACGCACGAGAACA<br>ACGCCGCCGCGAATTTATTCGAAGAGGTTCCGAACTTCGAGGAAGACGGCGGTGACGACA<br>TC |
| >Gm03_42184207 | TTCTTGTAATGATATTTCAGGTACAAAAATGAGCTGCAGAAGGAAGATAAGGATAGATTAAG<br>GAATCTACTGGAAAAGCAAAAGCATAAATTGGTGAGAACACTAAATATGAGTTGCTTTTCTT<br>CTGTTTCAAATTTCTGGTTGTGATTGATATTTTTTTTCCATACTGCAGGTTACAC[T/C]TGAAA<br>TTAGTAGAGAGCTAGACCATAGCTGCAACCGAGGTGAAAAGGAGGAAGATCTTATGTCAAT<br>TTATATCCTTTCCATCCTCCACCTTTCTTTACCCTACTTATCCTCATGTATTGAGATTGCAAG<br>AAATTAAAAGTCAGATAATATAACTAATTAATAATATGAAGATTCTTTTGA |
| >Gm03_42223604 | TCCTCGGAGCCATTCTGGGTGGCCAACCCAACCCACGCAGCATCCTGGTCCGACACCACG<br>CGCCTCTTCTTCAACGGCAGTCTTGTTTTGTCAGACCCCGAAACGCGCGTTTCGTGGTCAA<br>CCGCCACAAACAACGGCGACCGCGTGGTGCTCCTCAACACCTCCAATTTACAAGTTCA[G/C<br>]GACAAAGGCGGCACTCCCTTGTGGCAGAGTTTTCACTTTCCCGCAAATACCCTCGTCCAG<br>GACCAGAATTTCACCTCCAACATGACTCTTTTGTCCTCCAACGGCATTTATTCTATGCGGTT<br>AGGCAACGATTTCATGGGCCTATACGAAAACCACGACTCGTTATATTGGAAACGCACG |
| >Gm03_42224125 | GTTGGAACCGGACGGGAATCTGAAGGGTTATTACTGGGACGGTTCCAGGTGGATGCTTAA<br>CTACCAGGCGATTACTGAAGCCTGCGAGCTCCCCCGCTCCTGCGGTTCGTACGGTTTGTG<br>CACGCCGGGTGGGTCAGGATGCTCCTGTTTAGATAACCGAACCCGGTTCGAACCGGGTG[<br>G/A]GTGTTTTAATGATGCTTCTTCTGGAGACGCAGACTTGTGTAGTAGTGAAGGAATTGGTG<br>GAAAAAGTAGTTACTGGGTGCTAAGAAGAACCGGAGTGGAGGCAGCGCATAAGGAGCTAC<br>TAAGGCACGTAACGACGTCGTCTCTGGCGGAGTGTGAGGGATTGTGCCAGAACAACTGTA<br>G |
| >Gm03_42224392 | AACCGGAGTGGAGGCAGCGCATAAGGAGCTACTAAGGCACGTAACGACGTCGTCTCTGGC<br>GGAGTGTGAGGGATTGTGCCAGAACAACTGTAGCTGTTGGGGGGCGCTGTATAGCAACGA<br>AACCGGGTTTTGTTATTTGTTGGAGTATACGATCCAGACCTTGCTGGGTACCGGGGATG[C/<br>T]ATCAAAAGTGGGTTATTTCAAGGTTAAGAAAGAGGAACGAAGAACGAAACGGGTTTGGAT<br>ACGGGTTGGGGTTGTGGTTACGGTTTTGGTTGGGGTTGGGGTTATTATTATTGGGGTCGGG<br>TTTTGCGTGACGAGATGGAAAAAGAAGAGAGGGGTGAAGGAAGAGGATTGGGGTTCGCC |
| >Gm03_42224778 | CAAGTTTTAGATCCATTGAAATGAGCAATAGTAACAGTGCCAACGAATGACGCAAGGGGTG<br>ACGCATGTGCTCTTAGTTGACAATTGGTGGGGTCCATCTAATCTAATGTTTGTTTTCTGTTG<br>GTGTTGAGGTCCGGTGAAAAGGTACCGGATTGTGTTGGTTTTCTCACCAACCAGGG[C/G]C<br>GCAACTCTCGCAAGTGGCGGTTTCAAAAACATGACTTCACTACAGTGTTATGATCATAGCAT |

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| | GGTAAAGTCAATCAGCTTCATAGACTGAACTTAAACTAAATAAACATTTGTCGGACGTGTCT<br>TTTTTATATTTCAATTTGACTTGAAACTGCCGCCGCCGCCGCCGCCGCCGCCGCC |
| >Gm03_42243466 | GCTCAAGATCGGCCCAAACGAACCATCCGAGCTGGCTATCCATGAAAATGCCTACGGTCTT<br>GCCCGATATGCCGTCATATGCCAGGAGAATGGTCTGGTACCTATTGTAGAGCCAGAGATCC<br>TGGTGGATGGACCTCATGACATCAACAAGTGTGCTGAGGTGACCGAGCGCGTTCTTG[C/T]<br>AGCATGCTACAAGGCTCTAAATGATCACCATGTTCTGCTTGAGGGCACTCTGTTGAAGCCC<br>AACATGGTCACCCCTGGTTCAGAGTCTAAGAAGGTCACCCCAGAGGTGATTGCTCAATACA<br>CTGTTACAGCTTTGCAGCGAACTGTTCCCGCTGCTGTTCCGGCCATTGTCTTCTTGTC |
| >Gm03_42243699 | TGAAGCCCAACATGGTCACCCCTGGTTCAGAGTCTAAGAAGGTCACCCCAGAGGTGATTG<br>CTCAATACACTGTTACAGCTTTGCAGCGAACTGTTCCCGCTGCTGTTCCGGCCATTGTCTTC<br>TTGTCTGGTGGGCAGAGCGAGGAGGAGGCAACCCTCAACCTCAACGCCATGAACAAG[G/T]<br>CCCAGGGAAAGAAGCCGTGGTCCCTTTCTTTCTCTTTTGGAAGGGCACTTCAGCAAAGCAC<br>TCTCAAGGCATGGGGTGGGAAAGATGAAAACATTAAGAAGGCTCAGGATGCTTTATTTGCC<br>AGGTGCAATGCAAACTCACATGCAACTTTGGGAACTTACAAAGGTGATGCTACCCTTG |
| >Gm03_42338317 | CTTATATATTTTATATATACATAATCAGGACTATTTAAGAGGAAACATAAGATAACATGCTGT<br>ATTTGTGCTACAAAATAAAAGCAAAAGGTTACTTGAGAATCTCAATCCACTTGTCTGCAATG<br>GCCATGTGCAGGCGATAATCAAAGCCAACCCCACCATCTTGCGTAGGAAGGCAG[T/G]ATG<br>TTGGCATTCCACTCACCTGGAAATGGAAAGAAAATTGAATTGTCAACTACCAGTTTTCATAC<br>AGTCAAATAGAGGGTTCAATCATCATATTGTCTTTTTGTTCACTCAACTCCTAAAACAGTTTG<br>AATAAAATGTTAACAGAAGTACATTAATTCAAAACTTTAAGAGGACAACATA |
| >Gm03_42672131 | CCCCAAAACAAAAAAAGACAATTGCAGATCAATACGCAGCGAATGTAGAAGAACATGGAAA<br>ATTAAAAATAAAACTAAAATTAAAATAAAATTGAAGTGGAAAGTGAGAGAAACACTAACTTCT<br>TCAAATCCGGTGGTTGCCCTGATCTGCTCATTGTGAGGAGAAGAGATCACAGATG[G/A]CAA<br>CGAAGGAAGAAAATTTGGTTTCGAAGTGGCAAAACCTCAACTACGCTCACTCAAGACCCTA<br>ACATCGGAGGCTATACTCTTTATCGTTTAAAGCCAGGCCCAGTATACGAAACGATTGCTCAA<br>AGGCACATGGATCTGATAGCATTAGTAAACAGCCAGGACCAAAATATGGGAAAG |
| >Gm03_44043363 | TCTGCAATTTCTTCTCTGTCACTCGACTTCTTTACATCAATATAACCAGCTACTACGACAAGG<br>TTGACCAGTTCCCTCAATTTGCTGTTCTTACCAAAGCATTCTACCAATCCAGTTATGTTTTTC<br>ACTCTGTCTAGCCTTGCCATGGAGAAAATTATGGGCTTTGACTTGTCTTTCAA[A/G]GAACCA<br>CTGCCACAAAAGAGACGAAGATAAACTCATTAACTGTCATAGTTGCTTTCAACTGACAAATG<br>CAGCATGCATCTTAACAGCTCTTACAAACAGCTTTAGATATTCTATTCCTTATCAGGACTATG<br>CATGTGGAGGTCTGGGTGGGTTTTTAAACGAGGCATCAGTACTGAAGGA |
| >Gm03_44509128 | AATCAAGAGTATTAGTGGACAGAGCCCATAGTCATAGAGAACACATGCATTTGTACCTGGA<br>AGAACGTTCTGGGCTCTGATTTGGGGAAGAATTGTTCCATTTGCTCTGCGTCTTAGAGCCA<br>CATTGCGCTGAGGAGAATCTCCAATATGCTTGCGGATTAAGCTGGAACATGCAAAGG[T/C]C<br>ATTTCAGCTTGCTTGAGCTGAAAACTCACAACACCAAACACGTGCGCTCCCGCGATCGCAG<br>CCATTACTTCTCCTCCTCTGAATCACTCGGTCGAAGCAATTAGCAAACGCCGCTTTTCAAGT<br>TTCAACCCAAACAAATTTCATTTATTTACTTACTTTTGGGTAATAATATTTTTAAT |
| >Gm03_44562570 | TGGAATAAGAGTTAATAGCATATCCCCTTTTGGAGTTGCAACACCTCTTGCATGCAAAGCTT<br>TCAACTTTGAACCTGAGCAAGTTGAAGCTAATAGCTGCTCACAGGCTAATCTAAAAGGTGTT<br>GTGTTGAAGGCTAGGCATATAGCTGAAGCAGCTTTGTTTCTTGCTTCTGATGATG[G/A]AGT<br>TTACATCAGTGGTCACAACTTGGTGGTGGATGGTGGCTTCTCTATGGTTAATAGAAGTTATT<br>CCTTCACACCAGCTTAATTACATGTAGAGCCAAAAAAACTATAGTTTTGTGGCTGATTGGCA<br>TTAATTTCTTTATCCTCATCAAGTAGAGAACATATATGATGTCATGCAGTGCG |
| >Gm03_44581602 | CCATTCCAAAGACAGTAACGTAAACAAGAAAGGTAAAGGTAAGTCTGTAGATAGTAGGGGG<br>AGTAACTCCAGAGAGAAATTAGCAAATAACTTTTTAAGCACTGTACATCAGCTACAGGCAAA<br>TTATAAATCTTCAGAAGAGAAAGCGGAGGTGCTATCAAGGGGTGATTACCGCAGTG[C/T]AG<br>GAGGCAAATTAAAAATTGAGCAGCGGATTGATATGAATTCTGGTAGTCAACCTACGATGAA<br>GCTTGGTGGGAAGACTGAAACATCAAACGACAGTTTATCTAATCAAAGTAAAGACGATGGG<br>GGTGGTGGGAACAAGCAACGCAAGAAAACTTCTAAGTTCCTGAGAGTACGCCTTGG |
| >Gm03_44581620 | CGTAAACAAGAAAGGTAAAGGTAAGTCTGTAGATAGTAGGGGGAGTAACTCCAGAGAGAAA<br>TTAGCAAATAACTTTTTAAGCACTGTACATCAGCTACAGGCAAATTATAAATCTTCAGAAGA<br>GAAAGCGGAGGTGCTATCAAGGGGTGATTACCGCAGTGAAGGAGGCAAATTAAAAA[T/A]T<br>GAGCAGCGGATTGATATGAATTCTGGTAGTCAACCTACGATGAAGCTTGGTGGGAAGACTG<br>AAACATCAAACGACAGTTTATCTAATCAAAGTAAAGACGATGGGGGTGGTGGGAACAAGCA<br>ACGCAAGAAAACTTCTAAGTTCCTGAGAGTACGCCTTGGTGATGGTTCTGTTTCAGC |
| >Gm03_4 | CTTGCTTTTTGTTCGATTGAGACTATATGTTATAGCGTATTAGTATAATATAAGCCTTTTTGT |

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| 4779159 | CTTCCCACTATGATTGGTGGTTGTATCATTTTGTTGTAGATTTTAGGTTGTTTTTTTCCCACT<br>AGGAGTGTTGAGGTTTCAGGTGGAAGTTCGTTTTTTGAGTGATGGTCACTTTT[A/C]TTCTGT<br>ACAGTAGTAGTGTTTGAATAAAATGAAGAGGCCGTGATTGGAGAAAGTAAAGTAGTGTGTG<br>CATAGCTAGTGAAAATATGTAGTACCAATGTGAACGCCCAAAGAAAAAACACTGGTGAAATT<br>TTTGGATTCATTTTAGCATAAGTTTGGTTATGATTTTATTCATCGCAAATT |
| >Gm03_4<br>4916159 | TTGTGACACTCACGTACTATAAGTTGTTATGAACTTTTAATTTTGCGTTGTACTAACATTTCC<br>TATTTGTTGCTAACACATTATATATTGCTAGGTTTTCGTAAATGTTGTCCATGTTGGCGCTGG<br>GCCTATTTCTCAATCTGATCTAGACTTAGCACAAGCTTGTGGTGCTTGCATAG[G/T]TGGATT<br>CAATGTAAAAAGTCCACCTACTGCTCTTAGTCAGGAAGCAGCTCGTGCCGGTATCAAGGTA<br>TTAACTTTTTAAAGCTTATGCTCATATTTAACTACATTGTGGTTATGCTTAAGATTCTGTGAG<br>ATGAAACTCTGACTTCCTTTTAACATCCATTTGGTTTGGTTATATAGATA |
| >Gm03_4<br>5034077 | AAACATTTTTATATGTTAACACCATTTTCTTTTCCCGGATGTCACACAGATTACATTTGGTGC<br>CAAGAAGCAAAATGTTGCAAAGAAGCAAAATGTTCCGATCTCCTCTATATTTAGTAACGATA<br>GCGATGAAGACTAATGATGGAACATTACTCGTGAAGTGACATATCAGCGTGATG[T/A]TGAA<br>TCTCCTGTGTGGTTTGGTGTGGTTTGGTTTGTATTAGCTGTTTTATTTGATAATTGTTGCCAT<br>CCTCGGTTCAAGAGGAAGAAAACATTTGGGATTATATGATAGTTTGGAGTTTGGTAGACCAA<br>AAATGTTACCTGCTTATCTGTGAGGTAATGTTATGTTTGTAAGGATTTTAT |
| >Gm03_4<br>5035493 | CTTTCTGGTACCATTTTGCAATTGGTTTTGCCTTAGCAGATAATGACATTAGTAATTTTCCAT<br>TGGCACAAGTCATTGACTGGAGAAAGCAGGACAAGTATTGGCATCAGCATGGCACATTACA<br>AGTATCCTAATTTTGAAAGGGACAGAAAAGGCATAATATTCTGCCCAACACGGAA[G/T]AAA<br>ATAAAGAGTGAAGACGATGGTTTTTTCATATAAAAAGCACACAACACAACACTTCCAAGTTC<br>CAAGTGGATACTTCTACGTCTTAAATGGATAAATCCATTCGTGATTCCATAAAGTGAATCCC<br>AGCTACAATTGTTATAACAGCTTATTTACAACACGCTTAACAATTTTTCAAAG |
| >Gm03_4<br>5035574 | GGAGAAAGCAGGACAAGTATTGGCATCAGCATGGCACATTACAAGTATCCTAATTTTGAAA<br>GGGACAGAAAAGGCATAATATTCTGCCCAACACGGAATAAAATAAAGAGTGAAGACGATGG<br>TTTTTTCATATAAAAAGCACACAACACAACACTTCCAAGTTCCAAGTGGATACTTCT[T/C]CG<br>TCTTAAATGGATAAATCCATTCGTGATTCCATAAAGTGAATCCCAGCTACAATTGTTATAACA<br>GCTTATTTACAACACGCTTAACAATTTTTCAAAGAAAATCCTCCAGAAAGCCTAATTAGACA<br>GCTTCGGCAAAACCAACTTGTAGATTTCCGTAGTCAAAGACGGTGTGATATGC |
| >Gm03_4<br>5090113 | AGCAATGGCTTCATGGAGCTATGCGTCACCATGGATACCTTACGTGGGAAGCACGTATCAA<br>GATTCTCCTTGGCACAGCCAAAGCGTGAGTGTCTCCATCTGTGTTGCTTCTATTTTTTCCCT<br>AGTCCTCATAAACCAATTTACATGTTTCAGGCTAGCGTATTTGCATGAAGCAATTG[A/G]ACC<br>AAAGGTGGTGCACCGTGATGTAAAGTCAAGCAACATATTAATTGATGATGATTTCAATGCCA<br>AGGTTTCTGATTTTGGCCTGGCCAAATTATTGGGTGCTGGGAAGAGTTATGTCACAACAAG<br>AGTTATGGGAACTTTTGGGTCAGTAATTTTGTGCTCTGCTGAAGTTTTCCCATG |
| >Gm03_4<br>5098611 | AGTGATAAAACCACTAGCTATGAAAAAGCGAAATTGAAGTCACAAGAAGAGGAAAAGAAAT<br>CACTTGGATATGATCTTTACATCAATTACAACTCTTGCATACTGCAACACCTCCTCCTCATTC<br>GGAGCTCCACTATACTCAGCATAGTTTCCAAGCTCTGATGCATAGCCTAAATCTC[G/T]AAC<br>CTAGTAAACAAAAGGTATATTAACTCACCGAAAGACCTACTAAAAGAAAACTTCCTAAAAAT<br>ATCTGTTTGAGGTGTCCCTTTATTCATATTTTTAGCCAGAATTAAATATATCCACAAAACATG<br>AAAACTTACCGTATCAGCATAAATTACACTTGCACCACCTCCTGCTACCATT |
| >Gm03_4<br>5105553 | AAAACGTAGGTTGCAGAGCTGGGATGTTTCAATTATTTTCTCTTCATCTTTGTTGTACCATG<br>GATCTGGAAACAGAAAGACCTAGGCCGCATATCTAGAAGCAAACATGGGGCGACTTTGAA<br>GATAGAAGGATGCGACCATGGACTCCATTATCGGTGGTGAAGAGCGGGAGCAAGCGG[A/G<br>]TAAGAAAGAGAGCATCGTGAACGTGGTTCAGTCTTGGCTCGTGTGATCTATAATGGCTTAG<br>CCTTGACGGCGGCGGTGTGTTTTGCCGTCCTCCTCCACTTTTCTATCTTCGTGACGGTGGC<br>GACGATTCGGTTTAATTAGTTTTTTTTTTAAAGTAGGGTTAAAATGGCCTTCTCATAT |
| >Gm03_4<br>5105650 | GAAGCAAACATGGGGCGACTTTGAAGATAGAAGGATGCGACCATGGACTCCATTATCGGT<br>GGTGAAGAGCGGGAGCAAGCGGATAAGAAAGAGAGCATCGTGAACGTGGTTCAGTCTTGG<br>CTCGTGTGATCTATAATGGCTTAGCCTTGACGGCGGCGGTGTGTTTTGCCGTCCTCCTC[G/<br>A]ACTTTTCTATCTTCGTGACGGTGGCGACGATTCGGTTTAATTAGTTTTTTTTTTAAAGTAG<br>GGTTAAAATGGCCTTCTCATATATAATTTTATTTTGATATATTTTTTTTAACCCAACTACTTCAT<br>TTTAATATATTTTTTAACCCAATTACTATCTTATAATATGAACCGTCCAATTATT |
| >Gm03_4<br>5107141 | CTGGACCTGCTGCAGTTAGACCCGGAGCACCCAGTTTTAGACCTGCACCACCAGGGAGGT<br>TCAATGATCCATCAGTACCTCCTCCAGTGGGACCTTCCAATGCCCCACCGGCTGCTGGACC<br>TTTCCAGCAGTTTCCGCCACCGCCTTTTCCCCCAACAATGCAGCCACGTGGTCCTCCG[C/T]<br>AGCCAATGTTACCGCCATCAATTCAATCTCCACCTAGTCAAGCACTGCCTTTTCCCACGTCT |

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| | CTTCCGGCTCAACCACAGATGCCTTCTGTTCCAATGGGCTCTCCCCCGCCGCCGCCACAAA<br>GTGCTGCTCCTGCACATTTAGGTTCAAATTTTCCTCCTCCGCCACCTACAATTCAGC |
| >Gm03_45107353 | CCTAGTCAAGCACTGCCTTTTCCCACGTCTCTTCCGGCTCAACCACAGATGCCTTCTGTTC<br>CAATGGGCTCTCCCCCGCCGCCGCCACAAAGTGCTGCTCCTGCACATTTAGGTTCAAATTT<br>TCCTCCTCCGCCACCTACAATTCAGCCATCTTTTCCTGGGTACCCGAGTAAGCATGC[C/T]A<br>GTCCTGAAATGCAAGCTCCACCTATGCACTCCTCGTTCCCTGCTAATCAAGGAAATTTTGG<br>GCCTGTCCCGCCTGCGGCTTCTTCTCCTTTTTTGTCTCACCCAGGAGGTTATGTTCCATCAC<br>CCCCAATGGCTCCCCCACTAGGTATCCAGCCAATGCAGCAGCCAGGATCTGTGCCC |
| >Gm03_45114910 | CATAATCACTTATCAACTTTGTATATTGATTCCCTTTTGGCAGCTTCCCTGGCTAAATAAGCA<br>AGTCAGGTCTGCTATTTGTCTCACAAGTGACGACCATTTCTTTCTGCATTGGAGATATATTA<br>AATCTGTCCTTTGGGGGTGCTTGGAGAAGCATTCTTGACCTGGCTAATTGATCG[T/C]GACT<br>TGTGAGAAGCATGCTTTTGAGAGATTGTTGATTCATCCTGGGATGTATCCGTTAGGTGAACT<br>CTACCACAGAGATTGAATTTAAACGTGTTTTCATGTTTTTGATATAGAGGGAAGAAAGAAAC<br>ACTTTTTTGGTTACTTTACCTTGTGAGATTAGTTGTCACTTTCTGTTTTATA |
| >Gm03_45300266 | TCTTTCACCATACGATAAGGTCATCAAAGCCTACCAGAAAAAGGGGGAAGGGGGGATATGT<br>ACAATCTCAAAACTACATGGAGAACATAACTAGGAATCTGACTGCCCCATGTTATGTCAGTA<br>AGAGATTGTGTATGTTGTGCATTCAACTGTGCCTGGCGTGCAATCTCCAGTTGGTC[A/C]AA<br>TCTTTGACTGAAGTAGTACAGCCATCGCTGAAGCCTTATTCTGATGTTGCGGTCTGTTTTTA<br>AATAATACCCAAATTCAAAATCTAATAACACAACACAATCAATAAATGAATAAGTGCACATAT<br>TTCATACCTCTCATTCTGACAAGTTGCAGTAACTCCTGTAGGAATATGAACTA |
| >Gm03_45329182 | AAACGTTAAAAAGAGTGAGGTAATCCAACAAGAAGAGGGGAAAGCAAGAGTAGTGACAGA<br>GAGAGGCGAGGATCGTTCACATAAAACATCGACAGAGATCGACGAGGAAAAGCTAAGCCT<br>AACAATGTGGAGCTCCAAAACGACATTGATGTTTGGCGTCGCAGCCATTGCTCTGATGA[T/<br>C]GTTTCTCTCATCTGCTTCAGCGGACGACGTCGTTGCACTCACAGAGGAAACCTTCGAAAA<br>CGAGGTTGGCAAGGATCGTGCCGCTCTCGTCGAGTTTTACGCTCCCTGGTACGCGCGAAT<br>CGTGATTCTCTCATCTCACGCGCGTCCATTTCATTATTTCCATTACTATGAATTATGAAA |
| >Gm03_45336647 | AACCCGAACCAGTCAACCCGGACGAACCGAACCGGGCCGAGAACTCAAAATCGCAACAAG<br>AGTTTTTTTCCAAGGAAGACCAAGAGGGTGAGTGTGAGTAAGTGGAAGCGGCGGATATAGT<br>GAAGTGCATTGGGCTGGCAGGAGCACTGTAGAAGAAGCCGGCTCCGGCGGCGGAGATG[A<br>/G]ATTCCCGGCCGGGACTGGAAGGGGCGCTGACGTAGGGAGTGGAGCAGGTGCTGTCGA<br>TGTCTTCGAAGAGGGGAGTGTCTGGGTTTTCGGTTACGCCATAATTGTTCGGGGTTTGGAG<br>CTCCATTATTCTGCTCTCTTGTCCCGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAAAG<br>AG |
| >Gm03_45392239 | CACTATTAATTGATTTTTCAAGGGTAACTACTGAGTATTTTTGTGCTCTTGTGAATTTTCTGT<br>AGGATGGAGGACCTAATTCCCATTTTATTCCAATACGTTCGAAGTCGTGAGAAGCCTGGGG<br>GAGATGTGTTATTTGTAGCTCACAATGCTCGCTGTTTTGATGTGCCCTTCATCAT[C/G]AGTG<br>AGTTACGGCGTTATTCCATAAAGATTCCTCCTAATTGGTTGTTTTTGGACACCCTTCCTTTAG<br>CGCGGGAACTAATGAAGTCCGGAGGTCTCTTTCTCTCTCCTCTTCTCTTAACACATATGCAT<br>GCACGCACACGCACACACACACAAATACTTATTGTTTCCATGTGAAAACCT |
| >Gm03_45416367 | GGTTGCTTGTTATAGATGTTGATGCTGCCCTACCGTTCAATATTCCATTATCCATAGGTGGA<br>CTGGTTCCCCACTTACCTTCTGATTCACTAGGCTCTATCACTTTCACGGACCCATCTGTCAA<br>TCCAACAGCAAATTGGTTGGGTTCCAGTGGATGAGCCGCAATGGCAACAGGATAC[G/A]CA<br>GATTGATTCCTGCAATATAGTATACCACAATATGGATCACCAAATGGAAGTAAGACTTCACG<br>ATACTACATCCTTAAATAAATGCTCAATGTTTAATACAATAGAGAGTAAAATTGGGTCTGATC<br>TGTTGGGCAGAAACTTACCCGCTTAAAGCTGCTGGAGGTGAAAAGTATGTGGA |
| >Gm03_45471080 | ACATTGAGACGCTGGACCTGTCGATGTGTCCGCGGATCGAGGACGGAGCTGTGTCGGTTG<br>TGCTGAGTCAGGGATCGGCGAGTTGGACTCGGGGACTGAGGAGACTCGTGCTGAGTCGC<br>GCCACCGGGTTGGGGCATGTGGGCTTGGAGATGCTGATTCGGGCGTGTCCCATGTTGGAG<br>[C/T]CCGTGGATGTGTCCCATTGTTGGGGGTATGGCGACAGAGAGGCTGCGGCGCTATCGT<br>GCGCCGCGAGGTTGAGGGAACTCAACATGGATAAGTGTTTGGGAGTTACTGATATTGGGTT<br>GGCCAAGATTGCTGTCGGGTGTGGGAAATTGGAGAGGCTGAGTTTGAAGTGGTGCTTGGA<br>GA |
| >Gm03_45493120 | GAAATCTCAACCTGTAAGTACCTTTTTCCAATGTGAATTGCAGGATTGTTTCAATATAGCTTA<br>TTCTATTACTGTGCATTATATCTATACACAGAAATTGGGAACTCACAGCACCATGGACTGGA<br>GTTCAAGTCAAAGTTCCCGTGAAGTTCATTACAGGTGATTTGGATGCAGTATAC[C/T]CTTCA<br>CTAGGGATGAAGAACTATATAGAGAGCGGCGCTTTCAAGAAAGATGTGCCATGTTTGGAGG<br>AAGTGGTTGTGCAGGAAGGGGTGGCTCACTTCAACAACCAAGAAGCTGCAGAGGATGTCA |

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| | CTAATCACATTTATGATTTTATCAACAAGTTCTGATGCTATCAGCTTAGTTAAT |
| >Gm03_45503654 | CTAAATACACAAATAGAAAATGTTTTGAAAAGGAGCAGGGAGTGCAACATTATAAAGAGTG<br>GCCACTCAATAGTCAATAAGGGGAATCAAAAAATCAAATGCTAGTTTTTTGTAATACACGTC<br>AATGTAAAACATGGGAGCCACGATATGTTATCAGAACAGAAATATCATAAAAACTG[T/C]CAC<br>CGACGCCTAGAGCAAACAGTTTAATTTCAGAAGTGAACAATTGTAAAAAAAAAATAGAACAA<br>AGTTATATTATATTTCTTAAACTCTAAATCCTCTGCTGTTCCTCCTTCCTCTAGCCCTCTCGA<br>ACTTTCTTCCCTTTGCTCGTACATAGGGCTTGGTATGGCTGTGTGGCACACC |
| >Gm03_45503673 | ATGTTTTGAAAAGGAGCAGGGAGTGCAACATTATAAAGAGTGGCCACTCAATAGTCAATAA<br>GGGGAATCAAAAAATCAAATGCTAGTTTTTTGTAATACACGTCAATGTAAAACATGGGAGCC<br>ACGATATGTTATCAGAACAGAAATATCATAAAAACTGTCACCGACGCCTAGAGCAA[G/A]CA<br>GTTTAATTTCAGAAGTGAACAATTGTAAAAAAAAAATAGAACAAAGTTATATTATATTTCTTAA<br>ACTCTAAATCCTCTGCTGTTCCTCCTTCCTCTAGCCCTCTCGAACTTTCTTCCCTTTGCTCGT<br>ACATAGGGCTTGGTATGGCTGTGTGGCACACCAGGAGCAGGACCAAAGTGT |
| >Gm03_45516926 | AGGAGGAATGAACAATACCAAAAACAAACGCAGAATGGCTTATTAATTATAAATATACATTA<br>CATGATAAGGAGTAAAGATACACCGCTACTCTACCCTTACACTTTCTACTTACGATTTGGCA<br>ACCACTACGCAGCTTACTTAAGTAAAGACTTAAAGAAGCTAAACCAAAAGCTACC[T/C]CGC<br>ATGAACTTGGCAGAACTTCCTTGCAGACATTCAGACATTATACATGCACACAAAGACTAAAC<br>AAAAATGAATACAGCAAAGGCCAAAAAAGCTGCTACATCCTCAGCTTTCAGGTACGAGAAA<br>ATGCGTCACACATCGAAAGGAGAAGAAGGGCCTGATCTGTTCTGCCCTCTCTTC |
| >Gm03_45516951 | AAACGCAGAATGGCTTATTAATTATAAATATACATTACATGATAAGGAGTAAAGATACACCG<br>CTACTCTACCCTTACACTTTCTACTTACGATTTGGCAACCACTACGCAGCTTACTTAAGTAAA<br>GACTTAAAGAAGCTAAACCAAAAGCTACCTCGCATGAACTTGGCAGAACTTCCT[A/C]GCAG<br>ACATTCAGACATTATACATGCACACAAAGACTAAACAAAAATGAATACAGCAAAGGCCAAAA<br>AAGCTGCTACATCCTCAGCTTTCAGGTACGAGAAAATGCGTCACACATCGAAAGGAGAAGA<br>AGGGCCTGATCTGTTCTGCCCTCTCTTCTCGTACGCATCAGATCCCGACCTTC |
| >Gm03_45517710 | ACTTTTACTGGACCGTGTGTGTAATTAAACTAAGCATAGTATTTTTTACTGTCACAGTAGAAA<br>AGAAATAACGACCTTACCGGAAAACGGAGAAATCGGAGGAGTAGAACCGGCAGGAGAAAC<br>CGGAGGCGATCCACTCTGGTACCCTGGCGGTTTCACGATCATGATACTACGCGTCA[C/T]T<br>CTAGTCGCTTCCTCCGACGATTCGTCACCGTACGATCTCACGCTCCCGCCCTCCGCTTCTG<br>ATCAATAATCAATAAATAAATATGCCTAATCGTTAGCATATTTTGATGTTTTAAAACGGAGAA<br>AAATATCTATGAGCGTTTCAGATGCAATTAGATATCTCCAAATTAAAGTGGTTAG |
| >Gm04_59457 | ATCACCAAAAAACACATTTAGCCAAAAGCAATAGGAGTTTTTGAAGTAAAAAATGTTAAAGA<br>GAGAGAGAGAGAGGACCTGAGAGAGAGAGGACCTGAGAGAGAGAGAGAAGTCTAGAACA<br>TGATCGGTGGAGGTGACTGTGACGGCGAGGATGAGCGAGGCGAGTGAACGGAAGGAAA[T<br>/C]TTTAGAGCGAGTTGACCTCCGTCACTGCTCCTCCCGTCCCATCAGTACTTCTACTTAAAT<br>ATCCAATCAACATTATTTACCTATCTCCTAGTCCCAAATCAACAAGTTTTGGGTGGAAAACTT<br>TAAGAAGATTCTTATAAAATAAAAGTCAAATTTTAAAATTACTATAGTTTTTGTTGC |
| >Gm04_136286 | AACAAATGGAAGAAGTGGAAGATGGTGTAGCAGAAGAATCCATGGGTGCTGGAGCAGAAA<br>TAATGGAAGGTGTTGACGTAAGCCCCAGCGAAGAGGAATCCGATCTAGAGCCTTCCCATGA<br>GGAACTTGAGCGTCTGCAGGAACAGCTTTCAGACAGTATAGCTGTAAGATCTAGGCGC[T/C]<br>AAACAGAAAGAAAAGCTAAAAGAGTCAGAGCAACAGAGAAGGCTACCACAAATTTTACATC<br>ATTTAAGCCTGGCTCCTCCAGCAGGAGAAAGCGTGTTTCTATGCAAGAAGTAGATTATTCA<br>GACCCACTTCGTTACTTAAGAACAACAACTAGCGCTTCTAGGCTTCTTACTCCAACCG |
| >Gm04_633262 | GAAACCATTATAATTCACAGCAAGAAGTATATTGCAGAATTAAATGCTAAATTCTTAAGAAAC<br>ATAGAAGGAATTCCATACCCAGGGAGGCCACAGTTGTGGCAAATTGCGACATTAGGGCATT<br>CTCTTGCATAATGACCAGGTCTCTTGCAGTTCTTGCACAGATTGTCACGGCTGAC[G/C]AAA<br>AAACCTAATTAGTGTTGCCATTGTAAGAAATGCATGCTCATGTTCCAAAAGTCAGATGGCTT<br>TGAGTAAATGCACCCGCTCTGTTTGAGAGGCAAAGCACATCACTTAAGTTTCAAACTAATCA<br>TAGCAGCAGCCAGAGTAAGAAGATTGCAAACCACAAGAACAGAAAATAAATTG |
| >Gm04_988779 | TTTTTCCAAGAAAAACTCCTCAACATCTCCAAAATTTCTGACCAGAGAAGAAGCTGATCAGA<br>TTCCTTTCTCATCAAAACACCTACCATCGCTTCTCAAATTCTTCTCCATCCCAAAACACTCTC<br>CCCAAGCCAAGGCAATGAAATATACCCTCAAACAATGTGAATTTGAATCCATGG[T/G]AGAG<br>AGACCAAGTTCTGTGCCACTTCCCTGGAGTCCTNNNNNNNNNNNNNNNNNNNNNNNNNNN<br>NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN<br>NNNNNNNNNNNNNNCCCTTATGCAGTTTTTTACTGGCCACAGCCAGCATAGTGACAC |
| >Gm04_39101834 | GTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTATGTAAAATCATAAACCAGACAAAACAACA<br>GGAAATGAAAGAACAATAACAAACCTTTGCCAGCTCCCATAGTGTGACGGGCGGTGTGTAT |

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| | AAGGCCCGGGAATGAATTCACCGCCGTATGGCTGACCGGCGATTACTAGCAATTCC[A/C]A<br>CTTCATGCAGGCGAGTTGCAGCCTACAATCTGAACTGAGGACGGGTTTATGGAGTTAGGTC<br>ACCCTCGGGGGATCGCGATCCTTTGTCCCTGATGTGCCATTATTTTCTCCTATTTCTTAACC<br>CCTTTTGTACCATTTTAAGTACTGATTAATCTTAATTGTCAAATTAATTAGACAGT |
| >Gm04_41571642 | TTCTTTTCGTTCTTCCACAGCCGGTAGGTACTGTTTTCACTCTCATTGTTTGAATTCTTCTCT<br>GTTTGTTTTAATGGCACTGCCACACCGTATCATTACCCTCTATCAAACCTAATTTCGCCCCT<br>TCTCTTTATGAATGAATTCATTGAATATACGAACTTAGGGTTTTTAAATAACTG[G/T]AGATTC<br>GGCTTTGTCCATGGCCACCGAACCAAAAGCAGCCACTGAGGACGTCAAGATTGATCTCTTC<br>GAAGACGATGACGAATTTGAAGAGTTTGAAATCAACGAAGGTAAATCTTGTCCTTTCCGCAC<br>GCAAATCTCGTTGCCTCTGTTTCAATTTTTGTTTTGTTTATTTTTCCCAAT |
| >Gm04_44751336 | CCGTTAAAACTCAACTGCAACTGCAGCAGCGAAACCAGCAAAACGTGTTCTTCCATGCTCA<br>ACGTAGCAGAACGCGAAGAAGCACTACCAGATTCCACTCATCCAAACGCTGCTTTAGTTCT<br>TCCGCCTTTCCAAATGCGTCCGCGTTTCGCCGCGGCGCCGTGTGCCAGGTCGCCAGC[A/G<br>]TCGACTTCGAATCCGCCGCCAAAGCCGGAGAGGATCGTCTCTCTAAGGTATCATCGCTAC<br>TACTCACTATTTCTCGTGTTTTTCCCAAATTAGCCCTCGTTCGTAGCTACTAGTACAAGCTC<br>GTTTGGTTCGGTTTTGGTTTTCAGGTGCCGGTGCGTAATATAAGGAACTTCTGCATCA |
| >Gm04_44761104 | CTCTTTTAATTCGCTTATTTTACTTTTCATCTTCACTACATTTAACTGGTTTAAAATTGTCGGC<br>GATTGAGCTCATCCAGCATCAACAACTCAACTTTCACCCACACTTATCTACCATTCTTCAAAT<br>TCGAAGCCTCCTAGCTCGGAACTGGAGTGTTCGGTTACAACACTGCTATCGT[G/A]AAGGCA<br>ATGCCCCAGCGGACTGGTTAGCTAAGCATGGTGCTTCTAACGCACTTTTTCTCTCCGTCCA<br>GCCTCACCTTGCTGCTTTTGGCTGATTCCTCTGGAGCTTCCATTGCTAGAACCTAGTTCTGT<br>TTTCTGCTTGCTGTCTTGTATTTCTTACATGATAAAAAAAAAAACTCGTTT |
| >Gm04_44787477 | AAAAGATAGAACCCCACAAAAAATATGTATAGTTATATATAGAGAGAGAGAGAGGGCCTTG<br>GTTGGTGGTGCAAGGCATAAAGAGGAGAATTGGTGGGGATAGGCGAAGGAGGTGGCGAC<br>TGAGTAGTGAATAGGGTTTTTGATTGATTGATAGCAATAATTGGTGTTAGCGAAGCTTG[G/A]<br>GAATTGAGATTTATGGGTCGCAATCGCAGTCGCAGTCGCAGTGTGTCACGCTCTCCTTCCA<br>ATTCCCGCAGAAGAAGGTACTCTCCATCCCCTGTTTCTCATCGCCACTCGAGAACTTCCAG<br>GCGCCGCTCTCCTTCCCACAAGCGCCGTCGAAGGCACAGAACCTCTTCCTCCCCCTCT |
| >Gm04_44787569 | GGTGGGGATAGGCGAAGGAGGTGGCGACTGAGTAGTGAATAGGGTTTTTGATTGATTGAT<br>AGCAATAATTGGTGTTAGCGAAGCTTGAGAATTGAGATTTATGGGTCGCAATCGCAGTCGC<br>AGTCGCAGTGTGTCACGCTCTCCTTCCAATTCCCGCAGAAGAAGGTACTCTCCATCCC[T/C]<br>TGTTTCTCATCGCCACTCGAGAACTTCCAGGCGCCGCTCTCCTTCCCACAAGCGCCGTCGA<br>AGGCACAGAACCTCTTCCTCCCCCTCTCTTTCACGCAGCCCCACTCCCAAACCCAAGAAAG<br>ATCAAAACAAAAGGTAACCAATCATAACCATTCTTTTATTTGCCTGGATTTTATCTTA |
| >Gm04_45033967 | ATGTCATACAAAAAGTGTGCAGAAATAACAATAGAATAGTTAGTGGATTGTTCAAAGATAGA<br>CATTGACTGTAAGATGAAAAGTTGAAACTTTCCAAATGAAAGAAAGAAAGGGAAGAAGAGT<br>ATTATTCAAATACCTGATCTTGGGGGAACTTCACTTGCACAGGAGAGCAGTGATCA[C/T]GA<br>TTGTCACCGACTCCAACCTGTCCAAACTACAATTGAAGGCAAAATAGGTAAGAATTTTCCAA<br>ACACATGTCAATAGTAAAAGACTTGTGATTGTACAGAAAGAGAATAAAGTCTTAATACCAAT<br>TTTTTTTTTATATGAAGTAGAATATATTTAGTTCTCTGCACACATGAATGTGCA |
| >Gm04_45034787 | AAATGCCAATGCATCCAAATAATACAAGAAATTGCTAGCTAGACACCAACTCAGCATAAAAT<br>TAAAGGACTACCTGAGAGATTAACTTATCACTCAAGGCTTGAAGCTTCTGAGGCACAAGAG<br>AATCCTCAAAATTTCCATGTCCTAGCTGGCCATATTTGCTCCACCCGTATGTGTAT[G/A]TGC<br>CACCAGAAGATGAAACAGAAATTGTATGCCGCCAACCACAAGCAACCATGACCATCTTGTC<br>ACACTGCAACATTAAACAAGCAAGAATTAGGCAAGGGGAGGAGGGAGAGCAAAAATCAAAA<br>GTTCTCCATCCATTACTATGCATGTACACCAATCACACATGAATTTTAACAACAT |
| >Gm04_45061078 | TTTTCCTAGAATCTTAATATTATTCCTAACTAACTATAGTATTACCATGCAGATGTTGGCACT<br>CATGGGAAATTCCAAGACCAAATCAATTGTCCTAACTGGCCACTCCATTGGAGGAGCCACA<br>GCCTCTCTATGTGCTCTTTGGCTACTATCTTACCTCCACCAGACATATTCCTCTA[G/A]TTCT<br>GTGTCAGTCTTGTGCATCACATTCGGTTCCCCCATGCTAGGGAATGGCTCTTTCTCACGTG<br>CCATTCTCAGAGAAAGATGGGGTGGTAACTTCTGTCACGTGGTCTCAAAGCATGACATAAT<br>GCCAAGGCTTCTCTTTGCTCCCATAACACCTTACACTGCTCAAATAAACTTCCT |
| >Gm04_45061509 | AGAAAGAGCTGTTCAACTTTGTGATGAGTCACTTGGATGCAGCCACACAAGATGAAGAAGG<br>GTCTGCACCTGTTTTGTTTCACCCATTTGGGAGCTACCTTTTTGTTTCATCAGATGGAGCAG<br>TGTGTGTGGATTGTGCAACTTCTGTTATAAAGATGTTGCATTTGATGTTTGCATCA[A/T]TTTC<br>CCCAGCTTGTAGTATTGAGGACCATCTAAAGTATGGAGACTATGTTAAGAATTTGTCATTAC<br>AATTCTTGAACCAGAACAATTCCGTGCAGGGGAATATTCCTGATTCAAGCTATGAAGCAGG |

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| | ACTTGAATTGTCGGTTCAATCTTCAGGTTTGGGTAACCAGGTAAATGCACTAT |
| >Gm04_45090419 | CCAACCCCCCTCCCCCAATAAAAATAGGAAAAGAAATTAGCTAACCACTAATGACTGATGATGTAAACAGTTATGGAGGAACCGTTGGCAGCTTGAAGAACATTGCGACTAGAAACATGTCAATTGCTTTGCAAACCAAGGCATACAATCTGACTGTTTTTGCCTGTATTCTTACAAAT[A/G]CTGTTGCAAAATTGGTGCAGTTACTGGAGTTTGATTGGTTTTACTATTTGCAGAGACATTGAATTTGTACAGATTTGCATGTATAATAATACATCAGTTTTAACAAGAATTTGTACTGAGAAAATCACACGCCCCGTCCCTCTTGCAACTACTTTCACATTATTTACGTTAGATACTTCC |
| >Gm04_45152573 | ATATTGGTTTCAGAATTAGCTGAAGTACTATCAAGTTTGTCAATATCATGCCAAACACCAGTCCTTCTTATCTCCATCTATCAAAGGTAAAAGTTACCATAAAAGCAGACAACATTGAATTTTCAAGTGCTATCAAGTACCTGAAAGTTGTCGAATAAGCGCTCAGTAATGTTATCATC[C/A]TAGTACTTCATCTCATCCCATGGTCCATCTCCAACACCAACCAAAATAATCGAGAGAGGATAATGACTGATAATCAGAATAGCTCCACATTTAAGACAGATACATAAACAACAAAAGGTTACAAAGATATCACCAAAAAAAATACAAGAGAAGTTACTCTACCTGGCAGCAATGATAGAA |
| >Gm04_45374514 | TCAAAACATGGACCCTCACCGCCGCCACCGCCACCGCCGCCGCACGTGGTGCTGCTCCTTTGCCGTCCCTCCCTCCAGCCCCGACAACCTTACTAACTCCTCCAAACCTCTCCCTCGCAACTCCGAGCCTCACTCCAAACCTGCATTCTCCCTCCCAAACTCCCCCAAATCCCGCATCC[T/C]AGTCAAGATCGACCCTCGCCGGATCCTTTCCCCGGGAAGAGTCTCCCCCATCGACTCCGATCCCGTCGCCGGAGAACCTCTTCCCTTTCCCCCTCCCTCGCCGGAGCCGCCGCGGCCGCCATCTCCGGCGGCGGCTACCGGCGAGAGGGACGTGAGGATGAGCCTGAGAGGAAAGAACGG |
| >Gm04_45380764 | AAAAATAGATTGCACACCTCAATTCTGTTGTTTTCTTTCACAGCCAATGTGTCATCATCTTCAAAGAAACAATCAAGCAAAGATAGAATGTCATTGTCAACTTGATTATTTGGAGCTGAAGGATGTGCTGAGCAAGAGGTCATCAATTCTGGTACACAAGATACAGAGCCAACTTGATT[G/A]CTTGGTGCTGAAGGATGGTCTGAGAATGAGGGCATCAATTCTGATGCAGATGACACAGAGCCAACTTGACAGTTTGGTGCTGAAGGATGTGCCGAGCAAGATGGCATGAATTCTGAAACACGTGAAACAGAGCCAACTTGACTGTTTGGTGCTGAAGGATGTGCCGAGCAAGAGGGCATG |
| >Gm04_45380790 | GTTGTTTTCTTTCACAGCCAATGTGTCATCATCTTCAAAGAAACAATCAAGCAAAGATAGAATGTCATTGTCAACTTGATTATTTGGAGCTGAAGGATGTGCTGAGCAAGAGGTCATCAATTCTGGTACACAAGATACAGAGCCAACTTGATTGCTTGGTGCTGAAGGATGGTCTGAGA[T/G]TGAGGGCATCAATTCTGATGCAGATGACACAGAGCCAACTTGACAGTTTGGTGCTGAAGGATGTGCCGAGCAAGATGGCATGAATTCTGAAACACGTGAAACAGAGCCAACTTGACTGTTTGGTGCTGAAGGATGTGCCGAGCAAGAGGGCATGAATTCTGAAACACATGAAACAGAGCC |
| >Gm04_45380834 | AATCAAGCAAAGATAGAATGTCATTGTCAACTTGATTATTTGGAGCTGAAGGATGTGCTGAGCAAGAGGTCATCAATTCTGGTACACAAGATACAGAGCCAACTTGATTGCTTGGTGCTGAAGGATGGTCTGAGAATGAGGGCATCAATTCTGATGCAGATGACACAGAGCCAACTTGA[C/T]AGTTTGGTGCTGAAGGATGTGCCGAGCAAGATGGCATGAATTCTGAAACACGTGAAACAGAGCCAACTTGACTGTTTGGTGCTGAAGGATGTGCCGAGCAAGAGGGCATGAATTCTGAAACACATGAAACAGAGCCAACTTGATTGTTTGATGGCAAATGATGTGGTTCCGAGCAAGAGG |
| >Gm04_45380885 | GATGTGCTGAGCAAGAGGTCATCAATTCTGGTACACAAGATACAGAGCCAACTTGATTGCTTGGTGCTGAAGGATGGTCTGAGAATGAGGGCATCAATTCTGATGCAGATGACACAGAGCCAACTTGACAGTTTGGTGCTGAAGGATGTGCCGAGCAAGATGGCATGAATTCTGAAACA[A/G]GTGAAACAGAGCCAACTTGACTGTTTGGTGCTGAAGGATGTGCCGAGCAAGAGGGCATGAATTCTGAAACACATGAAACAGAGCCAACTTGATTGTTTGATGGCAAATGATGTGGTTCCGAGCAAGAGGGAATCAATTCTGATACACATGATACAGTGCCAACTGGATTGCTAGGTGCTG |
| >Gm04_45381162 | TGATGGCAAATGATGTGGTTCCGAGCAAGAGGGAATCAATTCTGATACACATGATACAGTGCCAACTGGATTGCTAGGTGCTGAAGGATGTGTCGAGCAAGATGGCATCAATTCTGATACACATGATACAGAGGTCAATCCAGCACATCCACTTGTAGAGGGATGGATGTAATTAGCAA[C/T]TGAAATATGGCTTTCACTAGGTTGTATAGGAACAGGTGCACAAACAGCAGCAACAGGGGCAGATTGTACAGAATCAATTTCCTCATCTGTTTCCCACTCTTTCTCCTCATATGGTTTACCATATTGTGCACCATTCCTAGGACCAGGACCCTCCTTTTGGTACACCCTACAAATCACATA |
| >Gm04_45385128 | CTAACTCAGCATTTGGGAGGCTAATGCAATTTCTCCAGGTAGCAGAGCTCCATTCACAAGAAACAGGGATGGAAAAATCAAAAAGACTCGGCTCAAGTAAATTTAGCCTCAGACTGTTGAAGTACTTTTGCGAGTCAGAATCTTCCTCACACTACTCCAGGAGAATAGACAATGCACAC[G/A]GCCACCTTTTAATTCTTACTTCTCACAAAAACTCCAAAGCCATAACACACAGTGAACCAACCATCTTCAAATGACTTGTAAAGGCAAAATACTAATTGATGAACAATCACCGTGCAAGCTTAGTCAAAAGGGAACAAGCAAACGATCACCATTGACAAACTATTTCACAATATCCCATTC |
| >Gm04_4 | CCAGCTAGCATGAAGAGCAAGATTTGCCAATAGGAGCGAGGCAATCTCACCTTATCCACAC |

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| 5580521 | GCCCACCACAACCTTAAATTACATCCATCATCCATAGCAACAAGCCAAAGAAGAGAAAATAA<br>TAATATGAATAACAACCCACAAAACTTGGGTCTTGCAAATTAAGTTCATTTTCCTC[G/C]CTTT<br>CACTCTCGTAGACATCACAAACCTTCCCTCCATTCATCCCACGCATGGCTGCCATGAACTCT<br>AGCGTATTGGCCTGTAGCTATGCCATATCAGGTGCAGCGTGTTCGGAGCTCAATGGGAAG<br>GTCACTTCCGTGGCCTATGTTGCATGCTCTGGCTACAAGTTGCCATTGATCAAA |
| >Gm04_4<br>5580672 | GGTCTTGCAAATTAAGTTCATTTTCCTCCCTTTCACTCTCGTAGACATCACAAACCTTCCCTC<br>CATTCATCCCACGCATGGCTGCCATGAACTCTAGCGTATTGGCCTGTAGCTATGCCATATC<br>AGGTGCAGCGTGTTCGGAGCTCAATGGGAAGGTCACTTCCGTGGCCTATGTTGCA[G/T]GC<br>TCTGGCTACAAGTTGCCATTGATCAAAGCTGAGGCCAGAGTTCCTAAAGCCAAAGAATCTG<br>AAGGAGGAAGGAGAGGTGCCCTTGTTCTCTTGGCAGCTACCCTTTTCACCTCTGCAGCTTC<br>CAATTCTTCTGCCAATGCTGGGATCATTGAAGATTACCTTGAGAGGAGCAAGGCCA |
| >Gm04_4<br>5581792 | TCTCATGCTGTTGTTCTTTTTTCTTCTTTTTTTTTTCTCCTTTTCGTTTCTGGGTTTTTATCTAC<br>GCAGAAAGTGCCATTCCTTAGTGACGACTTGGAGCTTGAATGTGAAGGAAAGGACAAATAC<br>AAGTGCGGTTCTAATGTTTTCTGGAAATGGTGAAAGGAGGCAACATTTTATGC[G/A]TAACT<br>GCGAACTTTTCGCCTTGCAATGTACCTAACTGCTTGAATATATATCATATTTTTCTGCATTGA<br>TTTATTATTATATTGTTGCTGTTGGATTTTATTTGTTGAAAAAAATGTGTGCATTAGGCGGCT<br>ATTTACTCTAGATTCGTTGAAATTACATTTTGCGATATGTTTTGATTTC |
| >Gm04_4<br>5581810 | TTTTCTTCTTTTTTTTTTCTCCTTTTCGTTTCTGGGTTTTTATCTACGCAGAAAGTGCCATTCC<br>TTAGTGACGACTTGGAGCTTGAATGTGAAGGAAAGGACAAATACAAGTGCGGTTCTAATGT<br>TTTCTGGAAATGGTGAAAGGAGGCAACATTTTATGCCTAACTGCGAACTTTTCG[A/T]CTTGC<br>AATGTACCTAACTGCTTGAATATATATCATATTTTTCTGCATTGATTTATTATTATATTGTTGC<br>TGTTGGATTTTATTTGTTGAAAAAAATGTGTGCATTAGGCGGCTATTTACTCTAGATTCGTTG<br>AAATTACATTTTGCGATATGTTTTGATTTCCCAAATTCATGTTAGCTT |
| >Gm04_4<br>5594453 | AGGTAATAAAAAAAGTTAAACAGGAAACTTTTTCGCTTTTTCAATAATTGGTTGGAGACAAG<br>AACTATTTTTTGTGGAAGACATCTTAGACATGTATAGTTTAGTTTATTTTCAATTTTTCTTAAC<br>AGGAAACAATCATTAGTAATTACTCTCATAAAATTGGTGATGCCAGCAACCAA[G/A]ATTTTG<br>GTGTTGACTGCGATGAGCAGTAGTACATTAGGCCTCATTGAGGTTTATGACAATCATGGCC<br>GTGCTTACCCTTGCAAAGGAAATGAACATGAGAAAATCTTAATCTTATAGATCCCTAGAAAA<br>CCTTAATAAACTCATCTACAAAATCATAGAAATGGACTCATAACTTCGTAA |
| >Gm04_4<br>5597626 | CACACCAAATGGGCGGAAAAAAAAACAAATTTTCATGCAGTGAACAAATGGGTACATGAAA<br>AAATAAAACTTTTTTAAAGGTATTGCGAAAAAAAAAAAAAACCGAGAGAGAGAGTACCCGAAG<br>AAGAGCATCTGACGGTAAAGACGGAAACTTTGGCGGCAGCATGTGGCGTATTGGAA[C/T]T<br>GAAGCGGTTGTTGGTGAGGTCATTGAGAGACAGAGCGAAGGACAAAGCTTTTGTCTCCATT<br>GATGCCTCACAGAAGAAGCAGCGTTACAGATATGTCTGAGGGAACCACTCCAGTCGCAGTA<br>CCTAGGTTTCCGCCACCTAGGTTTTTATTTTTGCAATTTCGCTTCATGGGGCTCTTT |
| >Gm05_3<br>7147034 | GCCAACAAAATTTTCAAAACAAAAACATCTGTAAGGATAAAAAATGCCTCGCGTACTAATTA<br>ATTTTGAAGATTAAAGTGGAAGGAAATTGGCTACGTGTTATTACTATCATCAAATCTTTCCAG<br>CACAAAGATATTGCTTTTGTCGTCCCTTCCTATTCTCAAGGTATCATCAACATA[T/C]CTATG<br>GCATAATGGAGTTTAGGAACAACAACAAATTTCATCAATAATAAAAAGCATGAGAAAACAAA<br>GAAAGACATGATTTGGGCTCGTCAAAAAGAGTAGATATGGGTTGGACCTCAAAATTAGACC<br>AATAAAAGAAAAGAAGAAGAAAAATCTTCAAAGAATTAGGATACGTGATTTC |
| >Gm05_3<br>8244445 | ATTTATGTCCGTGGAGCTGGAAGAAACCAATGCCAAAGTTGTTTATTTCGATATTTATGGGA<br>AAGTTTTGCATGTTGTGAATCTGCCCAAGGGGTTAGGTACTTCTGTCTCTGCCATATAGAAG<br>ATGTTTTCGTGTTTCAGTGGTTGCAAAAGGAAACGATAGTTATGTTTTTGCATCC[T/C]TTAAT<br>TATTCCACAAAACAAAACCAACGCTCTGTCTTTAACTCCTTTGTTTTATTCCATATTAATGAA<br>GTGCGGAGATGGCTGCTATTGTATTATATATGTCTCCAATTAATTTTTAATGTGAGGACTGA<br>ATCACTTTCTGAACGCCTAGATCCTCATCTTAATGGTCCTTGAAAGTATA |
| >Gm05_3<br>8251772 | TGCTAATATTTCTTTGATACCCTCTGTAACCCCAGATCTGTCTGGTAAGGTTGATTTGTGGC<br>CAAATGAAGATGGTAAACTTGAGCAGCTTCACTCAGATGAAGCATATGAGATGATTCAAAAC<br>CACTTGAGTCTCATTCTCGGTAACAAAGCTGGAGATTTAACATCAGTAGCTGAAA[G/C]CAG<br>CAAATTCAGGGTAGGGCAGGTCTATGCAGCATCAGTGATGTATGGTTATTTTCTTAAGCGA<br>GTTGACCAAAGGTTCCAGTTGGAGAAGACAATGAAAGTTCTTCCAAATGCAACAGAAGAAG<br>AGAATGGTGTTCATCGAAATACGATGGACAATGCAAGACCCAGTATTGAACAGGA |
| >Gm05_3<br>8252318 | CACAGAGGCATTGTTTGGAAGACCTGAAATTGTTGTAACACCTGAGGGGGCAGTCTCTAAG<br>GATGAAAACATCAAAATTAGCTTTGGTGGTTTAAAGAAGCTTGTTTTAGAGGCTGTGACTTT<br>TGGTTCTTTTCTCTGGGATGTTGAGAGCTACGTGGACTCAAGGTACCATTTTGTGT[T/G]TAA<br>CTGAGTAAAGCTTTGTATGTCTATCTTCTTTAGAGACCACAGGTGGGAGCCTTGTGCATTCA |

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| | GTTGTCCTTTTGATTTCTGTTTGCTCCCATACATCACAAGATACAGTTCATACTTCATAGTGT<br>GTTGGTACTGACTGATGAGTTTAAAGTCCAAATATTGTTTCACTAATTCCTA |
| >Gm05_38252356 | CACCTGAGGGGGCAGTCTCTAAGGATGAAAACATCAAAATTAGCTTTGGTGGTTTAAAGAA<br>GCTTGTTTTAGAGGCTGTGACTTTTGGTTCTTTTCTCTGGGATGTTGAGAGCTACGTGGACT<br>CAAGGTACCATTTTGTGTTTAACTGAGTAAAGCTTTGTATGTCTATCTTCTTTAGA[A/C]ACCA<br>CAGGTGGGAGCCTTGTGCATTCAGTTGTCCTTTTGATTTCTGTTTGCTCCCATACATCACAA<br>GATACAGTTCATACTTCATAGTGTGTTGGTACTGACTGATGAGTTTAAAGTCCAAATATTGTT<br>TCACTAATTCCTATGTATATACTATAGTAATAGTGGCTCTGGATTTCATCA |
| >Gm05_38278658 | AGGTTCCCTCCCTTCAGATCTGGCCTCCTGCGTCAACCTCCGCAACCTCTACATTCAGCGC<br>AACTTGCTCACCGGCCAAATTCCACCCTTTTTGTTTCATTTGCCGGACCTCGTTCGCTTGAA<br>CATGGGCTTCAACAACTTCTCCGGCCCCTTTCCGTCCGCCTTCAACAACCTTACCC[G/T]TT<br>TGAAAACTTTGTTTCTCGAAAACAACCAGCTCTCCGGCCCAATCCCCGACTTGAACAAACTC<br>ACCCTCGACCAGTTCAACGTCTCCGACAACCTCCTCAACGGCTCTGTCCCTCTTAAGCTTC<br>AGACATTCCCTCAGGACTCTTTTCTAGGTAACTCCCTCTGTGGCCGACCACTCTC |
| >Gm05_38279366 | GGAAGGGAACGCGAAGAAGTTGGTGTTTTTTGGGAATGCGGCGAGGGCGTTTGATTTGGA<br>AGATTTGCTCAGGGCTTCGGCGGAGGTTTTGGGGAAAGGGACTTTCGGGACGGCGTACAA<br>GGCGGTGTTGGAGGCGGGGCCGGTGGTGGCCGTGAAGAGGTTGAAGGATGTGACAATTT[<br>A/G]CGAGAAGGAATTTAAGGAGAAGATTGAGGCGGTGGGAGCGATGGATCACGAGAGTTT<br>GGTGCCTCTCAGGGCTTACTATTTCAGCAGGGATGAGAAGCTCCTTGTCTATGATTATATG<br>CCCATGGGAAGCTTGTCTGCCCTTTTACATGGTCCGTCTTCTTTCTCTTTTTTGTGCTTGCT |
| >Gm05_38280124 | CACGAGGGCCTAATGTTTCTCATGGAAATATCAAGTCATCAAACATCCTCTTAACCAAATCA<br>TATGATGCCAGAGTGTCTGACTTTGGCCTTGCACACCTTGTTGGCCCCTCCTCTACCCCTA<br>ACCGTGTGGCCGGCTACCGTGCGCCGGAGGTGACTGATCCTCGCAAGGTGTCTCAG[G/A]<br>TGGCAGATGTGTACAGCTTTGGTGTGTTGCTCTTGGAACTTCTGACTGGGAAGGCACCTAC<br>CCATGCTCTCCTGAATGAGGAAGGAGTGGACCTCCCCAGATGGGTTCAATCCGTGGTTAG<br>AGAAGAGTGGACTTCTGAGGTCTTTGATCTTGAGCTCCTTAGGTATCAAAATGTAGAAG |
| >Gm05_38280387 | GGAGTGGACCTCCCCAGATGGGTTCAATCCGTGGTTAGAGAAGAGTGGACTTCTGAGGTC<br>TTTGATCTTGAGCTCCTTAGGTATCAAAATGTAGAAGAGGAGATGGTTCAGTTGTTGCAACT<br>TGCAGTTGATTGTGCAGCACAATACCCTGACAAGCGCCCTTCAATGTCTGAAGTGGT[G/A]A<br>GGAGCATACAAGAGTTGCGAAGGTCTAGCTTGAAAGAGGACCAGGACCAAATCCAACATG<br>ACAATGATATACTATTATAGAAGAACATGTATCTTCTCCCTCGACTTTGCTTTGTCAGAGTCG<br>GAGCCCATATTTTACTTGCTAAATCCTGTGCGTATGTTGCTTGCATTCTGTTGGCT |
| >Gm05_38329040 | AAATCCGAGGAGGACCTCGACCCCGGCTCATGGCGCCCCATCTTCGAGCCTCCCGCCGGA<br>GATCCCCAACCCCTCCCCGAATCCGACGCCGCCTACTACTCCGCCGTCCACAAGCTCATG<br>TCCGGCGAGCCCGCCCTGATCCAGGACGCCGGCGAGGAGATCGCCGGCCTGGCCGTGAG<br>[T/C]GGGCACCCTGCGGCGCAATCGGTGCTAGGGTTTTTGTGGGAAATGGGGCTTTTTAGA<br>GAGCGGAGCAAGGGGAAGGCCTTTCTGTACCACCACTTCGCCGCGGAGGGAGGCAACAT<br>GCAATCGAAGATGGCATTGGCCTACAGCTACACGAGGCAGGACATGTTGGAGAAAGGTGT<br>AAAG |
| >Gm05_38386822 | GGAAGCCCACAGGCCTGCAAGCCCACCGTCTATTCCAAGATCTTCAAGACCGCATGCCCC<br>AAGGCCTACTCCTATGCCTATGATGACCCCACCAGCATTGCTACTTGCACCAAAGCTAACT<br>ATTTCCTCACCTTCTGCCCCCATCGCCCCTGATCCATAATTCATCTTGTATGCTTGTT[C/T]T<br>ACTTTATTAGACCATTGGATCTATCATCTATGTATCCCTAAATGGTATTATTATATTAATGGT<br>GCTTTGATCAATATTACTACCTTTTTTCGTCGAGGTGCGCTAATGTCCTCAGTTTATGCTATA<br>GTCGATGGCCAACCACACTCTATTTCTATCCCCCACGGTCTAATTGATGTGTA |
| >Gm05_38402327 | CATAGGAAAGTACATAGAACAAGTCTACAAGGACCTTCCACCCACTCACCCTGCTTTGTTG<br>ACTCACCATCTCAACCGATTGAAATCCTCTGCCCTCCTCGTCCTCGTCAAGAAATCCTACAA<br>GCTTCCTGGATCTCATCATCTGCCTGCGCTCCAGCCCCAAAAGACCCGTGGTCGTC[G/A]T<br>CCCAAGCCCAAGCCCCACCCCGTCTGGCCTGCTGCAGCCCTCACCGACAGCCCTGCTCTT<br>CTATCCGCCAAAAGAGGCCCCGGTCGTCCTAAAAAGATTGGTGTCAGCCCGCCAGGCCCA<br>AGGGGTCGTCCACCCGGGACTGGGAGATCTAAGCTGCCCAAGAGGCCTGGCCGTCCCCC |
| >Gm05_38431633 | ATGCTCTGTGATATATATCATCATGCTCTACTTGATGAGTTCTCAACAGCCCGTGATCTGCT<br>TCTTATGAGCCATTTGCAAGATAGTGTTCAGCATATGGACATTTCAACGCAGATACTTTTTAA<br>CAGGGCCATGTCACAGTTAGGTTTATGTGCTTTTCGGGTTGGACTGATTTCTGA[G/A]GCAC<br>ATGGCTGTTTGTCTGAACTCTACTCTGGTGGAAGGGTGAAGGAGTTGCTGGCACAAGGCG<br>TGTCACAAAGTCGTTATCACGAGAAGACTCCAGAACAGGTACTGATCCCCCCTCCCCCTCT<br>TCATTTTCCGAATGATTGATATGGTGGAAGTTTATTAGGTGCTGGTCTTAGACTC |

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| >Gm05_38432647 | CATCAATCTAGAGCTCCTGGAGGCAGTACATCTTGTTTCTGCTATGCTGCTGGAAGTTCCCAATATGGCAGCCAATGTTCATGATGCCAAACGGAAGGTCATTAGTAAGACTTTCCGTCGCCTGCTTGAGGTAAGTGAGAAACAAACATTTACTGGTCCACCGGAAAATGTCAGAGATC[A/T]TGTTATGGCTGCCACAAGGGTTCTTAACAAGGGAGACTTCCAGAAGGCTTTTGACATTATTGTGTCTCTTGATGTGTGGAAATTTGTGAGAAATCGAGACACCGTACTTGAAATGCTGAAGGACAAAATCAAGGAGGAGGCATTGAGGACATACCTCTTTACCTTCTCTTCATCTTATGA |
| >Gm05_38432746 | CATTAGTAAGACTTTCCGTCGCCTGCTTGAGGTAAGTGAGAAACAAACATTTACTGGTCCACCGGAAAATGTCAGAGATCATGTTATGGCTGCCACAAGGGTTCTTAACAAGGGAGACTTCCAGAAGGCTTTTGACATTATTGTGTCTCTTGATGTGTGGAAATTTGTGAGAAATCGAG[A/G]CACCGTACTTGAAATGCTGAAGGACAAAATCAAGGAGGAGGCATTGAGGACATACCTCTTTACCTTCTCTTCATCTTATGAATCGTTGAGCCTGGATCAACTCACAAAATTTTTTGATCTCTCTGTTTGTCGCACTCATAGCATTGTCAGTAGGATGATGATCAATGAGGAGCTTCATGC |
| >Gm05_38433152 | CACTCCAGGCTTCAGGCATTGGCATTCCAATTGACCGAGAAATTATCTGTCCTTGCAGAGAGTAATGAAAAAGCAGCAGAGGCCAGGGTAGGTGGTGGTGGATTGGATCTGCCTCTAAGGCGTAGAGATGGCCAGGACTATGCTGCCGCCGCGGCTGCCGGCAGTGGTACAGCCTCTTC[C/A]GGTGGTAGGTGGCAAGACCTGTCCCTTTCTCAGCCAAGGCAAGGCAGTGGGCGTGCAGGGTATGGTGGAAGGCCAATGGCATTGGGCCAAGCAGCTGGGAGTGGCTATTCAAGGGGACGAGGAAGGGGTTCGTATGGAGGTTCAGGGAGGACTGCTCAAAGGGGTTCAGCATTGAGGGGA |
| >Gm05_38435563 | TGTCAATTCTTCCCAATTTTTCATGCTCAATGTATATTGCCTTTAACATTGGGATGCAGCTTAGTGTCAAGACTATTAGTTAACAAAGTGTCTTTCTGAATGTTTTATAGTTGATCTAATTTCTGAATATGATTATCAGAATTTTGCAGTGGGGAGAGGACCGACGCTTTGATGAAATG[T/C]GCAGTAATTTGGGTAGACTGGCCATATTTTGGATATTTCAGGTTTCTTAGATTTTAATCATTTTTTTTAAGATTTAGCATGCTGATCTTGGTTTTTTCTGGATTTATTCTCTTTTGATGTCTTGTAGTAGAGGATTTACTTCAATTTTTTGCAGGCTGTCTGGGTGTGGGCTGTGAGTTT |
| >Gm05_38437624 | TTAGGATGGTCAAATTTTGGTGTGTGACTATTACAATATCGAATTGTTTAGGATGGTCAAATTGTTTAGGATGGTCAAATTTTGTTGTCTCTGGAAATGCTTTAAAACTCCTTATTGCATTCCTTAATTGTAGGTGAAATGGTATTAAATTTTTTAGTATCTGCTCAAGGTGCAGTGCA[G/A]ACAGTGGGAAAATCAGTGATGCTCTGAAAATTGGCTAGCACTTGGTTCTTTGAATTTGTTTGGTTCCTGTCTTACGTCAGACTGAAGTTGCAGCTGGTATCATCATCCGCCATGGTTAGGGATGTGGCTTTGTAATGCTATTGCAGCTTTCCTTCTAGATTTAATCTTTCTAATTTGCTT |
| >Gm05_38437721 | TGCTTTAAAACTCCTTATTGCATTCCTTAATTGTAGGTGAAATGGTATTAAATTTTTTAGTATCTGCTCAAGGTGCAGTGCAAACAGTGGGAAAATCAGTGATGCTCTGAAAATTGGCTAGCACTTGGTTCTTTGAATTTGTTTGGTTCCTGTCTTACGTCAGACTGAAGTTGCAGCTG[T/G]TATCATCATCCGCCATGGTTAGGGATGTGGCTTTGTAATGCTATTGCAGCTTTCCTTCTAGATTTAATCTTTCTAATTTGCTTGTTCTCTCTTAGATATGTATAAATTTACGTACTATATATGTTGTGTGCAAGTACTATGGCTTGTGCAGGTAACTAATGGATCAATCATGTTTTTCAT |
| >Gm05_38437894 | CAGCTGGTATCATCATCCGCCATGGTTAGGGATGTGGCTTTGTAATGCTATTGCAGCTTTCCTTCTAGATTTAATCTTTCTAATTTGCTTGTTCTCTCTTAGATATGTATAAATTTACGTACTATATATGTTGTGTGCAAGTACTATGGCTTGTGCAGGTAACTAATGGATCAATCATG[C/T]TTTTCATCTTATTTCTTCTATTGCAACTCTCATTGTGGACCTGCAGCATGCCAACATCGGCAGATATTGAACACAAATGTTTTGTTGATGTATCCTAATATTGTATTTAGTTAAATTCATTTCTGAATACAATGTAGTTATAAACTAACGGAATGCTTCTGTCTGGTGAATGTGCTGAGA |
| >Gm05_38437928 | TGGCTTTGTAATGCTATTGCAGCTTTCCTTCTAGATTTAATCTTTCTAATTTGCTTGTTCTCTCTTAGATATGTATAAATTTACGTACTATATATGTTGTGTGCAAGTACTATGGCTTGTGCAGGTAACTAATGGATCAATCATGTTTTTCATCTTATTTCTTCTATTGCAACTCTCAT[A/G]GTGGACCTGCAGCATGCCAACATCGGCAGATATTGAACACAAATGTTTTGTTGATGTATCCTAATATTGTATTTAGTTAAATTCATTTCTGAATACAATGTAGTTATAAACTAACGGAATGCTTCTGTCTGGTGAATGTGCTGAGAAAGTCATCTGTCATTGGTCGTCCAAGGGTGTGTT |
| >Gm05_38588041 | CCCCACCGTCGTCTCCGACGCCCTCCACAAGGCTGCCGTGAAGGCCGTCGACGTTCTCACCGCCATGGCCGTCCCCGTCGAGCTCTCTGACCGCGACTCCCTCGTGAAGTCCGCTAGCACATCCCTCAACAGCAAGGTCGTCAGCCAGTACTCCACGCTCCTGGCTCCCCTCGCCGTCG[C/T]CGCCGTTCTTTCCGTCGTCGATGCCGCCAAGCCCGACATGGTCGACCTCCGCGATGTGAAGATCGTGAAGAAGCTCGGCGGCACCGTCGACGACACCGAGCTCGTGAAAGGTCTCGTCTTTGACAAGAAGGTCAGCCATGCCGCCGGGGGACCCACCCGCATGGAGAACGCCAAGATCGC |
| >Gm05_3 | TGCTGAGGCGCTTGAAGTTATTCCCTATACTCTGGCTGAGAATGCTGGTTTGAACCCGATT |

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| 8589019 | GCCATTGTTACCGAGCTGAGGAATCGTCATGCACAGGGTGAGATAAATGCTGGAATAAATG<br>TGAGGAAGGGTCAGATTACCAACATCTTGGAGGAGAATGTGGTGCAGCCCCTTCTTG[G/A]<br>TAGCACAAGTGCGATCATGTTGGCGACAGAGTGTGTGCGGATGATTTTGAAGATTGATGAT<br>ATTGTAACTGTGAGGTAGAGTTGATTGAACAATGTGGAATTTAGAGAGAAACTGAATCACCC<br>ATTATCTTCTTTTTTTTTTTTTTTTGTACTTCGTGCTTTAATTTTATGTTGGTAGTTT |
| >Gm05_38596037 | GTAGATAAAATAGAGGTAGAGGTGTGGTAGATTTGAGAGCAACATTGAAATGCATGCCAAG<br>ACAGACTCGGAGGTAACAAGCCTGGATGCGTCGTCCAGCACAAGGTCTCCTCGGCGAGCA<br>GTGTACTACGTTCAGAGCCCTTCCCACGATGGGGAGAAAACGACGACGTCGTTGCACT[G/<br>C]CACCCCTGTTCTCAGCCCCATGGGTTCCCCTCCTCACTCTCACTCCTCCTCCAGCCGCTT<br>CTCCGCTTCACGCCACCGCAATAACCATAATAATAAATCTTGGAAGGGCATCGACGTCATC<br>GAAGAAGAGGGTCTTCTCCAATCCGAATTAGATCGCCAACATTCTCTCTCTCGTCGATA |
| >Gm05_38696065 | AATACCACAGTACAGTGCGTTCAGGAAAAATGAAAAACCAAGCCCCAGAACTCGATTTCAA<br>GTGGGTAACAGAGCAGTAGAGTTGATCCATTCACACGTAGGTAGCTACTCTCCTCAGAAGA<br>ACCAATTTTCATAAGCACCATGACGAATATCGAATATTTGAACTTAGTGGAATCAGG[G/T]TC<br>AAACTCATGAGGTGTATTCAAATGGTTGAGGAGGTTGAGGTTCCTCATCCACAGCCATGGC<br>TGATGAAGAACTCTGCAATCCTGTTGCTGACCCACCAGCAGCAGAACTGGTAGATGAGGG<br>CGTGTCAGTTAGAGCAAGCACTTCTGGCTCAGTAGGATGCAAGTCTCTGAGAAGCAC |
| >Gm05_38765188 | GGAGTTTGACAATGATAACAAATTCCCACTAAACATAACTCTGCAGATCTGAGCATCCCTAA<br>ACCCACTGAAAAGGCGATTTTTAATTTTCTTTCTTGGTTGAGTATGGCAGGTATTGCAATGG<br>AACATTTTCTCTGGACTAAAGAAAACCAAGCATGTGCGACCGAGAGGAATAGCAC[G/A]CTA<br>GGTCTTCTAACTGTTTACCCAGTAAAGTCGGGAAGTTTTCCACTGTTGATTTTTCTCACCGG<br>GAAATTCAAGAATGGAAGAAAGAATGCTACTCTGTGTATATCTCTCTGTATATTAAGTGTAAT<br>TTGTTTATACTTGTTAAAGGGTGCTTTATCAAATCTTGTCACCGGTAACTTT |
| >Gm05_38863867 | AGATTCCTCGTCCCTGGGAGCGTCGTTCCTCCTGCGGTACTCGAGCCACACGAGGGCCAC<br>GTGGACGAGGCACTGCAGCGCGTAGCCGCAGATCCACCAGCGGATCGGCGTGTTGGGGT<br>TCTCCTTGACGGTGCAGGCGAGCATCACCGCCGAGACCAGCACGAATGCCATGTTCCACG[<br>A/T]TATGTCGAGCGCCACCACCGGCTTCGAGTAGGTCCAGTCGGCGCGGCGCTCCTCCAG<br>CTCACGCGCCGCCGTCTCCCGGACCACGGCGGAGTGGCCGCGGCGGCCGAGGAGGAGC<br>GCTAGGATGGGGAGGCGGGCGGCGGCATCGGGGCGCGGGAGAAGGAGCGGCGCGTGG<br>GACTGAGG |
| >Gm05_38896514 | ATCTCTTGCAGATTGTTCTCTGCAGCGATGTATAGCGCAGTCTCTCCAGCATCGTTCTGAAG<br>AGACATCACATCAGAGAGCGATGACCATTCTTCATTCTTCACTTTCTCCACCAGTTTCTTCA<br>CCCCATCAAAGTCCCCAGATCCAACGCTCGAAAATATTGATTGGTACGCTAAGAA[G/A]CGC<br>ACACCCTTTGCCTCCATCATTCATTCACTTTCTCTCTCTCAAGTTTCAATTCAACAAACAAAA<br>AACAAAGACAGGGGTTGGTTGTTGTTTTTCACTGTTTCAGCTTCCTTCCATCATCAGTTGCA<br>GAAAAGGGTGTCCTAAAGTATGAAACTTTTTATTTTTCTTTGTATCAAAAAA |
| >Gm05_38926542 | CATTTAACTCTTGTTACTTGTGTTATATGGTTGAGCATTTGTCTATGGAATTTCTTGACCTTT<br>ACCTTTGTATTAGTTTTTTTATGCCTACATAATTTGTATGTAATTGGTTGGGCAGGTTTACTT<br>GGACCCAAAGGAGCGAAACAACACTGAGTACAAGTTGGAGACTTTTGCTGCAG[C/T]ATACA<br>GGAAGTTATCTGGAAAAGATGTTGTGTTTGAGTATCCTGTCTCAGAGTCTTAGTTTCACTTT<br>TGTTAGCTTTGAGAATTTGTTCGGAGAATTGCATATGGAGTATGCTGGTTAAAATTTTGGTG<br>ACAAATTGACTTTCAATCTGGAATTCGTTTTCTGATTTTTGGAAGTACTAT |
| >Gm05_39038383 | GATAGTTTAGGCTATACAGTCATCTAGACAGCAACTACATCCAATTGTGATTCATATTATCC<br>ATTTCTATAAATTTGTTTGGCTCAAAAATGTGATTAGCATAAGTAGGTTTACACATTGAATTA<br>ATTAAAACTCCTCTTCCTTGATATACATAAATTATTCCTTAGAACAATACAAAA[T/C]TGGGTG<br>TGGAGTGTTGAGTATGTATCTATGTTGTAATTGACAGATCTTTCAGCTGCTGGGGATCCACC<br>TCAGATGGTGATCTCGTGAGGGCACACTGTGCAGTGGTTGTTTTTGGAAAAGCAATGACAT<br>CTCTGATGGAATTAGCCCCCGCCAACAGCATAACCAATCTGTCCAACCCAT |
| >Gm05_39082457 | TACATAGAATTACTTAATATTTGATTTTTTCATGAGAGTGATTATTATTTGCTGCAGCATGTG<br>GTGCTAGTGGGGCTCTGTATACGCTGATTTGCTGTGTCATTGGCTGTGGCTGCCTATACTC<br>TTGCTTCTACCGCCCCAAGATGAGACGACAGTATGGTCTAAAGGGAAATGGTTGT[G/T]CGG<br>ATTGCTTGATTCATTGCTTCTGCGAGCCCTGCGCCCTCTGTCAAGAATATCGTGAGCTTCAA<br>CACCGTGGATTTGACATGATTATTGGTATGCACTCATTATATATATATTAACACTACTCTATT<br>TGCTAAATACCCAGCTATGCAAAGTTGGAAAACAAATTTCTTATTTTATAGA |
| >Gm05_39082469 | CTTAATATTTGATTTTTTCATGAGAGTGATTATTATTTGCTGCAGCATGTGGTGCTAGTGGG<br>GCTCTGTATACGCTGATTTGCTGTGTCATTGGCTGTGGCTGCCTATACTCTTGCTTCTACCG<br>CCCCAAGATGAGACGACAGTATGGTCTAAAGGGAAATGGTTGTTCGGATTGCTTG[T/G]TTC |

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| | ATTGCTTCTGCGAGCCCTGCGCCCTCTGTCAAGAATATCGTGAGCTTCAACACCGTGGATT<br>TGACATGATTATTGGTATGCACTCATTATATATATATTAACACTACTCTATTTGCTAAATACC<br>CAGCTATGCAAAGTTGGAAAACAAATTTCTTATTTTATAGAGAAACTCCTTTT |
| >Gm05_39082823 | CCTTTTTTGTTTAATTAATTTATTTTTCTTTGAACTTGGTACGGTTAGGGTGGCATGGAAATG<br>TCGAGCAACGAAGTCGGGGAGTAGCCATGACTGCTACAACAGCTCCATCAGTCGAAAATG<br>GCATGAGCCGTTGAATAGTATGCAGTTCTGTAACTAAGACAATGTGTCTACGATGC[C/A]CG<br>TGTTAAACATGAAGAATAATAATGTTTGAAGAATGGTTCATTCCTTTTTTTCGATCCCCTTTT<br>CATATTAATAGTTGTCATTTAAATTAATGTTAGACTACTTTTATAATAGATGCGGTATTACAAC<br>GTATCTTTTTCTGTATCCAATTGTGGCAACGAGGATACAATATAAGTTCTT |
| >Gm05_39083038 | TGGTTCATTCCTTTTTTTCGATCCCCTTTTCATATTAATAGTTGTCATTTAAATTAATGTTAGA<br>CTACTTTTATAATAGATGCGGTATTACAACGTATCTTTTTCTGTATCCAATTGTGGCAACGAG<br>GATACAATATAAGTTCTTATGCATTTATCTTAACTTCCGCCGCTAGGCTGAT[T/A]ATAGTGG<br>TTTACAATGCATCTATTTATAAAATAAAATAAAAGACAATGGATCTATTTATCCTTTCATCCTG<br>TGTGAATATGTTTACAAAATCTAAGGTTTTTGTGAAACATGGAATGACTTTCTTGAAAAGTGT<br>GGTTGAAATGTACACTTGACTTATAGAACCAGTAACTCTTGATGTA |
| >Gm05_39085416 | GATTTCCGCAATTTTCTTTGTAATTGGGGTGAGGTGGTGGTGTGGCTGGGGCTGGGGCTG<br>GGTATACTCTTGCTTCTACCGCTCCTATATGAGACAACAGTACGATTTGCGGGGAAATGCC<br>TGTACGGATTGCTTGATTCATTTCTTCTGCGAGCCCTGTGCCCTCTGTCAAGAATATC[C/G]T<br>GAGCTTCAATTCCGTGGATTTCACATGACTATTGGTATCTACCATTCGCTTAATTCATTATTA<br>TGGCCCCTAATTTTGTTTTGCTTTCCTTTTTTCCACATCAAAACAACTGCTTCCATTACTCTC<br>ACTTTCATTTTTCTGTTTTGTTACTCCTTTCTTCAATTGATACAGCTCATAAA |
| >Gm05_40859886 | AGAGTTGGATTTAAATCTAGTTTTCATTGTTATGGTCTCCGTAGTTAACAAATTTTATCAGCA<br>TGTTACATTATTACTCCATTCTACGTTAGGTTGTTGACGAATTGAGTTATTCTGTCATCAGTT<br>GAAATTGAGTTGAGAGAATATCCAAATCGTTTGGCAATCTGGTGGTGGAGGGG[G/A]TATCA<br>AGGTAGGAAAATTGTACTTTGATTAGGTAGTTGGTGATGTTCTTTTACCATTCTTCCTCCCTC<br>TGTAAATATTACATCTGATGAAACGTTTAGCAGTTTGTGAATACAGGTTTGCTACCTGTAGT<br>GTAAGGTTGTCGTCAGTGTGCCATGTATTCTATTTAATAATAAAACTTCA |
| >Gm06_5092543 | TGGAAATGCAGAAAAAGTATGTCTAAATTAAGATTGTGTTCCAGGCTGAATGTTAAATGCAT<br>GAGATAAAACAATACAAATAAGGCATTTAGGGGAAAAAATATATTAGTCTCACAGGTATTCG<br>TAAAGCAGGTTCTGCATCTGGCTTCTGAAGTCGCTCAAGAAGTGCATAGGCAGCC[T/C]ATG<br>GGTGTTCTGACTGCTCAACCAATTTGGGCACCAGAGCAACTAGGTCTGCTTGTAAATGCTT<br>AGGAGCCTTGTCCAATACAAGAGAAATTTTTTGTGCAGACTGAGGTCGCCGTCTTGGTTCT<br>GGACAGCCTTGTGGAACAGCCCCGTCCAAAGCTCTTAGTGAGTTTACAATCAAAC |
| >Gm06_11230990 | ACATATATTATTTATTCAAAAAGGATTTGTGCTATGCCGTTGTCTATTGATTTGCAGTGTTTC<br>TGATCTTAAGGCTTTACCTGAAGAAAAATGCAATGTACATCTTTTTATTGTGTGCGTCTTCTA<br>TTGCAAAACCATATCTGTTGATTTGTTTTCTTGGACTAAATGGACTTTAAGAT[T/C]CAGGTG<br>GTGCTGAGGGTGGGAAGCAGAGCAGAAGTGAGAAGAAGAGCCGAAAAGCAATGTTGAAGT<br>TGGGACTGAAACCTGTTACTGGCGTTAGTAGGGTCACAATCAAGAGGACAAAGAATGTGAG<br>CATTGTTATTGTTCTATCTGTGATCTATCTGGGAGGCGGATGGATTTTAACCA |
| >Gm06_16005493 | TCGACCAAGGATTACAGCACCAACTAATAATGGTGCCACAGCTAAGACAAGATTTTGGCAA<br>CCCTCTTTACAAAGTATCTCAGAGGCTGCCAGCTGATCTTTGTTTTCAATGTTACCCACATG<br>TGGTGTGAGGGACAGAGAAGCAACTGAGGAAAAAAAAATAAACAGCAAAAACAAAA[G/C]G<br>AAAAAAAAACCATGATTGCTTGGTCATGTGAAAATTAAATATAGTACACTGAGGTTCAGGGG<br>AGGCCAGAAACAACAGAGATGATAAAATTCTCCTCTGAGTTGAGGCATAATTGTGTATAGTA<br>AAGTTGACATGTCCTATTTCTTTTAGTGTAATTAGATATTACTCTCTAATGAAAT |
| >Gm07_1262867 | AAAAAAAAAAAAGTACGTTGACATCAGTCAACATTGCAGGGTAGGTGAGTAGAAATTTTTGA<br>CAAGGATTTTTATTTTGTGGGGTAAATACGTGGAAATGTTTAGGGAACATATCTTACTAACC<br>CTGTCTCTATTTTCTACGCGAAACAGAAATTTTTGAAAGAAGAAATGACTTACTT[T/C]TAGC<br>GTGTAGTCGGTAATGAGACTGCTTTCTGTCCCTTCCATTGCAGTTGCCTAAAATGCAAGAAT<br>TCCATTGATTAAAAAATTGGCATAATTATTTACTATTACTCTATTAGTTAGTCCATTAAGTGTT<br>ATTTACATAATAGTTATTACTTAAATGGGAAATTAATGAAAATATACCTT |
| >Gm07_1262870 | AAAAAAAAAGTACGTTGACATCAGTCAACATTGCAGGGTAGGTGAGTAGAAATTTTTGACAA<br>GGATTTTTATTTTGTGGGGTAAATACGTGGAAATGTTTAGGGAACATATCTTACTAACCCTG<br>TCTCTATTTTCTACGCGAAACAGAAATTTTTGAAAGAAGAAATGACTTACTTTTA[T/C]CGTGT<br>AGTCGGTAATGAGACTGCTTTCTGTCCCTTCCATTGCAGTTGCCTAAAATGCAAGAATTCCA<br>TTGATTAAAAAATTGGCATAATTATTTACTATTACTCTATTAGTTAGTCCATTAAGTGTTATTT<br>ACATAATAGTTATTACTTAAATGGGAAATTAATGAAAATATACCTTCAT |

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| >Gm07_4060462 | AATTCATCAGAAGCTTTTAATTTAACTACTGATGAAGAGAGAACCATGGCAAATTTTGGTTTTATTATACATTAAGGCCTCTTGTATAATTTGGATGAGTTTAAAATGGTAAAAATTTACCTGCATGAGAACCAAGACATCAATTGGATCATTGTCTTCACACAGAGTTCTTGGGATGA[G/C]ACCATAGTTATGAGGATAAACAACTGATGAGTACAAAACCCGATCAACCTGACCATTAATTAGAAGGTAAGAAGAATATAATGATAGACGAGTAATGGCATCCACAAGTCAGAATTGCGAAGGGTCAAGATTTGAGAATCCACAAGAATTGTAGAAAAAACATGATCACAAAATATCATC |
| >Gm07_4868495 | TCATATTATCTGCTCCCTACACAATAGGGTGGGTAGGAATTGGGTTTTCTAGGGATGGTATGATGGTTGGTTCCAGTGCAATGGTGGGATGGATTAGTAAACATGGTCATGCAAAAATCAAGCAATTTTACCTAAGGGGTAGGAAGCAATCAGAAGTCATAATAGACAAAGGTGAACTC[T/G]TCCTCAATAATATCCCTGCGGCTGTGGCGACTAATGGAGCTGAAATTCATATAGCATTTCAGTTGCAGATGACAACCCCATTTCAGAAACAACCAATTCTGTTGGCTTTTGGTAGCAAATATCCACAGAACCACCACCTCTCCAAGCATGAAGACAAAACAGCTATCGTGTTTGATTTTT |
| >Gm07_5666664 | AAATATTAAACTCGACATACGGTGTGAATATCCTTTCTCCACCTTATTCTTTTTATGGTATCCTTTTCCACCTTATAAATAGTTCATTATTTCAATTATATAAAAAGAGCTGGATCTATAACTGCCCTAACCTGCTTTTTCTTCATTGTTGGTTTCTCTTCGTAGCTTACACCCAACAT[A/C]GAGCACCTGGCACTCGGTGTGCATGAACTGAAGATGATTTTGCGTGGAGAATTCCAGGGAAACCACTTAAACAAGTTAAAAGTTCTTGCTCTGTTCTTTCATACTGAGTCCGATGTGTTTCTACAACGGGTGCCCAATATAGAGAAGCTTGAGGTGCTTGATGGTTTCTTCACAGAGACT |
| >Gm07_7162763 | TCAACTCCCCAAAGCATTTCGTCGCTTACTACGCCCTTCCTCATCTCTGGGTGCCTAGGTATCCACCATAAGCCTTTCTTATATAGCTCTCCCACAACCCCGTTTTCACGGTTTAGGCTGCTCCCATTTCGCTCGCCGCTACTACGGGAATCACTTTTGCTTTCTTTTCCTCTAGCTAC[G/T]AAGATGTTTCAGTTCACCGGGTTGTCTCTTGCCTGCCCGTGGATTCAGCACCAGTTCGAAAGGTTGACCTATATCGGGAATCTCCGGATCTACGCTTCTGGGGTATCTAATCTCATTCGCTCCCCTAGCTTTCGTCTCTCGGTGTCAGTGTCGGCCCAGCAAAGTGCTTTCGCCGTTGGT |
| >Gm07_14560429 | TGGATTAATAAAAAAACATTTTCAAGTGTTATTTTTACCAATAACTATTATAAAAGTATCACAACGTATATATAAGTATTGATTGGACTATATATATGAAGGTAAAAACTAGCACATAATAATAGCATTTTAATTTAAATAGATGTAATGAAAGAATGAGTAGTGGTAGTAGTAGGGTT[A/G]CCGGAACGGAAGGGAAATTGAAGAAGAGATTGGCGTCGTCGTGGGAGATTAATGGAGAGTTTTGCGGAGGAGGAAGGTGGTGGTGGGTGTCGGTGGTGATGTTGGAGAAATCTAGAAAATCATCAATATGTAAGCAATCTGAAGGGGTGGAAAAGGAACCGTACAAGTCCATTGTTTTTC |
| >Gm07_38744579 | TTGTTCTATATTTACAATGTGATGCTCAATCGACAATGGATTTAACTTAAAAATATCAGTAGATCAGGATTGTAGAGAGAATAGTATAGTAGTAAAAAAGAAACACATCAGGATTCATCTACAACTCCTCCTCAATTCATCTCCTATTCCCCCCCCCCCCCCCCCCCCCCCCCCGCAG[G/A]TTCCTAAGACCTGCACTTGAGAGTAGTTTTTTGGGTGACTCTCAATCGCCAGTGGAAATCTCCCTCTGCTACTTCGTGTCTGTGATTTACCTTCACTATTAGTGTCGTCGTTATCGTATTTCCCCCATGTCTCTTGATGAGACCTTTCTTCAACATTGCCATTATCGCCACCTACTTCTC |
| >Gm08_585476 | GCCTTTCCCAGGGCGAGGCTGTAACAACTGGTGCTGATCCAACATGATGGTCCATCATATGTGGTGTTCTCAGCATATGAGGCGGTGTTCTAGCAAAGCTTGACATCTGTGGAAGGCCCGGAGAAGAAGCATCATTAACAAATGATGGTGATTTCTGCCAAAGCATGGTACTTGATGAA[T/C]GTTGCTGTTGCAAATTGGAGCTGTTCCACATATGATAAAGTCCCTGATGTGGGCGTATCCCATTTCCTGATGAGCAAAAGTAAAACAAAGATACCACATCAAGATTAGATGTAAAACTGTTAAACTCACATTACAAATTGGTTCAGCTTACAATTACCCAGATCCAACCACTTGAACTGA |
| >Gm08_586892 | AGCCCATTCCCTGAATATGCCTGCCATCAGAGGCTTCTGTTGCTCCAGCACCTATATTGTTAGCCATGTTGCTAATGGAGCTAGAAAAGTTATAAGGACTACCATTAGCTAAACTATCACGATACTCAGGTAAGGAATGAGGATGAAATCTCGAACCAGATGCAAATTTCATTGCATCA[T/C]CAAAGTTACTTGACTCACAAACACTGGACACTTTTCCGGCAGGTGCCCCTCTCACAGTGTTGTGAATGCCAGAATTCACATGAATGAATGCATTATCCATAAATGCATTCAAAGGTTGCCTAACTGTAGATTGAAATCTCTGATTATATCCATTTTCTAAGCAACCAGATCCAATTACTC |
| >Gm08_1908246 | CTCAGAGCAAGAGTGAGAATGTGAGTGAGGCTTCGGGAGAGAGAGATTCTGTGTATTTGAAAGACTTGTTGAAGGAGTATAGAGGGAAACTTTACGTGCCTGAGCAACTTTTTGGCACAGAGTTGTCGGAGGAAGAAGAGTTTAACAGAAATGTAAACGAGTTGCCCAAAATGAGCATT[G/C]GGGAGTTCAGGAAGGCTTTGAGCAAAGACAAAATCAAGTTGATAACTTCAAAGGGAGGTGGAGGTCTTTATAGGGATTTTGTTGTGGAGTTGAAGAAAATTCCTGGTGATAAAAGCTTGCACACAACCAAATGGTAACAGAAAATGTAACTTTCTTGTTAGTTATTATGCGCTGTGCAAT |
| >Gm08_2035440 | ATTTGAAAATTTTAGTCTCACATCGCAATATCCAGGGTGTTTGGTTACGAGTTGGAATCATGTAAACGGTCAAAACACAAATTCTTGCTTCTTAATTTCATGTGTTGGAAAGTGTGAACCCGTGTTTGCATCACTGCAAATGGGTTCCAGAACACACATTGTCTTCCTCTTTCCAATAC[T/G]GCGA |

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| | AACTGCTGAAACATGATTGACATTGACTAATTAAAAATATTTTTACACTGACATAATAAAAGC<br>TGAAATGAAAGGTTGAATGAATTTCATCAATCCCGCTTTATTTGTTCTTTTTTTTATTAGGGT<br>AGGGGTTAATTTTAATTACAATCCAACATTAGGATTGCCTGAACCAGCTG |
| >Gm08_2<br>052022 | TCTTCCGCTTTCTTTTCCTCATTGGAACGCTTTTCCTGCGTCAACGTCGCCACCTCTGACCC<br>CGACAACGACGATGACGACGACGATTATTACTCCACCACCACCGCCACTCCCACCTCCGC<br>ATCCACCACCACCACCACCGCCCTCGCCACCACTCCTCCCTCCGTTCAGGTCAACGG[A/C]<br>GAAAAAACAAACGACGACGTCTCCAACCTCCCCGTTTGAGGCAATATAACGACGACGACGA<br>CGTCGTTGCTGCGCTGTGTATAGACCTTTTTCCCTTTTCCTCCTTTCGTGTGTGTGTTATGT<br>AAGGATTCTCGATTTTCGTTGCTTCATACTTTTGAAGTCGTGAAAAAGAAAAAACAA |
| >Gm08_2<br>322527 | GAGAGCCATACAGAAGAGGTAGAGGGCGAGGAGACCCTGTTTGTTCCAGTAGGCACCGAC<br>AAAACCGGCCAGGGAAACGAGGAGGATGAGGATGCCGATGATGACAATGGGCCACCGGA<br>AGTTGGCCACGCACTCGTTGTCGGGCTTCGATGCCAGCCAAATGCCGGAGGCTATGATCG[<br>G/T]AATTGAGGCCAGCGTAGCTATCAAGTTCAGCACTGCGGTGATGTTGTTGCTTACCCCC<br>ATCCCCAACCCCAACCCCAACCCCAACCCCAACCCCAATATTACTTCCTAGATTACTCAATT<br>TATCCCTTATCTCTATTTATACACAACATCAATCTATAATTCTCACTCTTTCTCCTTAAG |
| >Gm08_2<br>433537 | ATTGAAAAAGAGTGGGTAATAAATGAGTGAAAGATTCCATTACCGTGGTGTTTCATGATTTG<br>GAGAAAGGAAGACATAACAGTGGAGATTGGCTTGAGTTCCACCATAGATTTCCCTCTCCTC<br>TCTGCATTCACCATACTCCTCAAGGCATCATTCAGTATCCTCCTCCCCATCTCTCT[A/G]TAA<br>CCCTTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTAGGGTTTTCGAAATACTCTA<br>CAGTGGATTTTAAGTTTTAATTTTAACAAGCAAAAACATATTCAACATTTTGGATACGTCAAA<br>TAAATAAATAACAAAATTCGTCACCATGAAAAATATAAATTTAGAATCTGA |
| >Gm08_2<br>449685 | TGTGAAAACCCCTCTCTTGACTTGCCTCTAGTGCCCCCGTCTCTTCCTCCTCTCTCCGCATC<br>GCTGCGTTTTCCGAATCGAAAGGTATCAATCATCTCTGCTCCAAGGCAAACTCTTTGTGTTT<br>ATATGTTTCGTTCAAAACAAACCGAATATGAGTTTTTTTTTTTTATGTGCACAGG[G/A]GCGT<br>AAGTAACAATGGTGGAGAAGGCCAAGGGTAGGAAAGAGGAGGTCGTCACTCGAGAGTTCA<br>CCATCAACCTCCACAAACGCTTGCATGGCTGGTAATCCTCCACAACCTTTCTTTCAAACCTA<br>TTTAGGGTTTTTGGAATTATTCTCACTCTTAACTCTTAATTCATATTTTGTATC |
| >Gm08_2<br>529717 | TAAAATAAAAAAACAAAGATATTTTGTTCAGATTGAAAAAATGGATAACCTTTATGGGCTGGT<br>GCTAGAGCCCAAAGTTGAAAAGCAAAGAACAGACAGCACTTACTAGTCCAACAGCGACGG<br>CTGAACCTCTTTGTTCTCTCTGTCTAAGAAGAAGAAGAAGAAGAAGAAGAAGAAGA[G/A]AA<br>ATCAAATATCCTTGAGCCAGACATGTACAGGAACGCTGCTTCACGTCTTAGGGTCATCAGT<br>GTTAGTTACTATCTTTCTTCTCCTTCCCAAATTCTATTCATATTTTCTGTGTCTTTCATTTATT<br>ATTATCGCGCCCTAGATCTCACCATACTCTGCACTTTTCATTACAACGCTGGT |
| >Gm08_2<br>535974 | GAGTCTTCTTTGTATACAATCAAGTCTTGTACGGCTGAAAGGTGTAAAATTAAGTTAAACTT<br>CCCTAACTATCCTTGTTGTAGTCAATAAATTAGTGATTGTGCACTAGCCACATTTGCACATTT<br>CATTATTTCGGGGTACATAAACATGATCTGATAGTTCTCACAGACTATTTTTTG[T/C]GTTGA<br>ATCCCTTTGAAAAACCAAATCATAATCAATGGATCAGGAACTGGTTTTGAATAAGTGTATTG<br>TATTGCTAGTTGAAATTCTAATTTATGGTGATTATATTACGGGATTATTTATTGTTGGCCACA<br>TTTGGCTCTGCTCTTTTAAAGAAAAATAGTTATTTTTTCCCCTAAAAAAC |
| >Gm08_2<br>557116 | CCACCTGAACTCAGCTTCAATCTTGTTACGAAGCACATTATACAAGAGTGTGGGGTAGAAC<br>AGGATCCGAGCACCAGCTCCAACCAACGCTCTCTTCGCATCAACGCTCACAATCTGCCTCT<br>CACACTTCTCTTCCTCGTCCCTACTACACTCTCCATCGTCCAATTCCTCGATCTTCA[C/T]CG<br>CACGCACCAAACTAAACCCTAAAACCGCAACACCGATCCCAATTTTGTTCGGTTAGAAACAT<br>GAAAAATTGAAGGGAATCGAAAAGCAATCGTACCTTAACGCTGACTTGGAAACGAAGGAAG<br>ACGCAAATTAGCGAGAAACACGATCGATGGGAAAAAGAGAAAAGCACAAATTTTG |
| >Gm08_2<br>593293 | TATTTATTTTCTCTCTTTTCTTATCTGCCAGCCAGGAACAGCGAAAATAGGGTAATGTAGAG<br>GGCCTTTGCGTAATTTCAACGCGGTTACACCGATTTATATAGGGGCATATAGCTCCGTGGA<br>ATCAACGCAGCCAAGAAAAGAAAATCCTCACCCATTTTCTTCGTAGCCAAACACTC[G/A]CA<br>AATTCTCAGTTATGTCGTGGCAAGCGTATGTGGATGATCACCTACTGTGTGAAATCGAAGG<br>TAACCACCTCACTCACGCCGCTATCATCGGCCAAGACGGAAGCGTTTGGGCTCAGAGCAC<br>CAACTTCCCTCAGGTAAGCTTTCCATTTTCCTTTAACTCTTTTTTCCCAATCGGATC |
| >Gm08_2<br>646878 | AATTCCGAGGATCGGCAGCGCCATCGACGTGATCCTTAATATGTCCTCGTCGGCGGTGAA<br>CATCGTCCCCCACCGCCGCCGCATCCCGACGGCGAAAAACATCGCCGAGAATCCCATAAT<br>CGCTGCGAGAAAAACAGAAACCACCGCGGATAGTTTGGCCCGAGAGGGACGATTGGCTC[<br>G/A]CAGCGCGTTCCCGACGCGAGTCGAAACCGCGAAACCAAGCGAGGAGGGAAAAACATA<br>GATGAGTGAAGTGATTTGAATGAGTATCCCCATGGAAGCAACGGTAGCGGTGGGGTCCAC<br>GAGAAGCCCGCAAAGAATGATCATGATCTCATACCACCACCACTCCAAGCAAACGGAGAC |

| | GCA |
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| >Gm08_2670235 | CTTCGCGCCGCGGTCTCCGCCGGATACTGGGGCGTCGATTGAGTGGCAGCCTTTGGCGG<br>CGGCGGCGGCGGCGATTTCGGTGGCGAGGGAGGGCTCGGAGGTTGTCATGTCGACGAGG<br>ACGCCGCCGGGGCGGAGGGCGGAGAGGGCACCGGAGGAGGGGTGGAGGAGGACGGAG<br>CGGA[A/T]ATCGGAGGGGTAGCCGACGATGGTGAAGACGACGTCGGAGTTGGCGGCGACG<br>GCGTGAGGGGAGGGGGCGAAGTGGGCTCCGAGGTCGAGGAGGGGCTGGGCCTTGGAGG<br>GGGTGCGGTTGAAGACGGTGAGGGTGTAGCCGGCACGGATGAGGTGGGCGCACATGGAC<br>TGGCCCATGAC |
| >Gm08_2798583 | TGTAATCAAGAGGCGTCGGAAATCTCAAAGAAAAAAATGATGAAACAAATCAAAGTAGCAAT<br>CGGCATTAGATCGGTGAGCTACAGTGACATAAAAATGAAATAGAATAGAACATATGGAAAT<br>GATGAGAGAAAGAAATAGAAAACCTGAAACACCGAGATCATAGCCAAAGAGAGAAC[A/G]G<br>CCAAGGGCCCCAACGAAGCATGTATAGACGAAATACCAACTGAACTTGTGCTCGTAAAGAT<br>GAGCCCTTTTTCCTGGTCCTCCAATCTCTACTCCTCCACCAGCCATTCTCTGTTTCAAAAGA<br>GAAAAGGGAAAGGTCCACCAAACACAGCCTTACAGGTTACACATACAGAACTCCAG |
| >Gm08_2864933 | ACAAACAAAATGCTCGCTCACAGAAATGCAAAATTTACATACTACGGTAAGCCTTGATGACT<br>GTAACTGAAGTGTGGGAGAACAACCTAAAACCTTAAACATCTACATCAATGATATAGACGGC<br>TACTACAACAAACCTAATATGCTGTCATCAATATATATTGCCCACTAAAAAGTTT[C/A]GGAC<br>ACCCCAATCTCGTATATAGAATTATACGTAAGAAATACTCAGGTATTATATGCTTAAATGTGG<br>TCTTCCATCTTTCAGGATTAGAAGACAAAAGCATACAGCATTGCACTAGCTAGTAGCGACTT<br>TTGCACTTTTCCATGGCTCTAGGTGCTGCAATAATCACAAATTTAGATGAC |
| >Gm08_2983624 | CTTGTTTCTCTAAACATTCGCAGTGGCCGCCCAAGAGCTTTCGCCTTCGCCAGGCTAGAGA<br>GCTAATGCTGCTATTATCCTTCCTTGGATGTCTGAGGTCAAATTATATCATAAGTTTGACTAT<br>TTTCTCATTTCAGGCTAGCACCTGTGTCCTTGGTACGATTTTGTTACACATGGCT[T/C]AATG<br>AAGATGGTGTTTTCGTCACTCATATTTTTGTATCCACTGGAATTAGTCTGTTCCCGCATAGTT<br>GACAAATAAATACTATGTATAGATGGAATGGATCCTGAATCGTATGCCATCATTTAAACGTG<br>TATAGTTAGTGTTAATGAGTTGAAACGGATCAACATTTAGTTGTTTTTTTG |
| >Gm08_10919109 | ATATTCTGGAAACTTTTTTGTTTATTCTTTTTAAAATATCATATCATACTGATGGAAATTTGCA<br>TGTTACATACATAACTATAACTACAATTTTTGTGTGAATCACGATCAACAGTAATAGTGTTCA<br>AGAGCTGCCCAAAAATAAAGAACAGCTAAGCAGCTTGTGTAGACAAGAATCT[G/A]ACAGTT<br>GGAGAGTGGGTTTGATGGTAGTGGGGTTGAGGGTGCTCACTGCTGTGGGCAGTGTTGACG<br>CTGCTGGAGGTTGTTGAATCCATGAATTCTTCTTCATTGCCAAGGCTTGCCCTGGAAATATT<br>TGTCTTGTTCTGCTTCCTAGTTTCCCGGATCTTTGAGAAATCAAGTGAGTAG |
| >Gm08_14156009 | TGGCCGTGGAGTTTCACCGATGGCTTTGGGGAACACGTGGCGGCCGAGGCTTTTTTCTTG<br>GGAGAGGCGTTGGGTTTCGGTGAAGCGGCAGGCGTAGCTGGCGGCGCCCGAGTGGAACT<br>TCACGGCGTGGACCATGCCGTCGCCGTCGAAGAAGTGGTGCCCAGCGACGGGCTCGTAG<br>A[T/G]TGGGTTCGCGCCGTTGCGGACGTAGACGCCCTCAATGCATTTGGGGATTTTTCCGG<br>TCACCGGGAGGGACTGATGCGCCGGGTGCTCCGGCACGGGGGCGAAGTTGCCAGCGATT<br>TGGACACGCGGGTCGGCGGTTTTGGGGAGTGGGTGTTGCCGCTCGTGGGAGACCAAGGC<br>TGTTTC |
| >Gm08_14997737 | CGATTTGTATGCATGCTCAATTTTCTTTCTCAGATTATAGTTCTGCAATATATCAATTACGCC<br>CATGTAGAGGACAACATCATATACCTCAAAAAGCTCTACTTCTTTTGCCTCCACCTCCTCCT<br>CAACCTTCCGAGTAGCTTGAGCTGGCATGTTCACTCCAAGCTGCACTCGCAACC[C/T]GAGT<br>CACAAAATCAACGATCCAAAAGATCGGGCATTTATACAAAATGGCAAACAGCCTATGGCAT<br>GCATGTCCCTGAATTAAGCTCGCAGCTGTCATAACATATCTTACAAGAAAAAACATCTTTTA<br>TGAGAATGAGAGGATTAAATCTGGACAGTCATATATGGAGGGTTAAGGGTTTA |
| >Gm08_32448434 | CTTAAAATTTTTTTGGGGAATTTCCACATTTCTGTTCTTGAGGGGGTTATTGTTTTGAAACGC<br>GTGTTGGTTCCGCATTTTGTGGGGGTTTTGGGGGTTGGGGGGTTCTGGGGGGGGGGTGGG<br>GGGCTTTCCGTTTATGGGTGGGGGGGGGAAGGGGGGGGGGGGGGGGGGGGGGTTAT[<br>A/G]AAGGGGGGGGTGGGGGGGGGGGGGGGGGGGGGTCTGTGGATGTTTCTGTTAGACAA<br>GTGGCCTCAGATATCTTAAGAAGGGGGGGGGGGTTGAATTAAGATATTCCAAACTACTTC<br>CCCAAGTAAAAACCTATTTCACTTTTTATTTAAGTTATAAATTTCCTTAACAATGAACTTCTT |
| >Gm08_32448435 | TTAAAATTTTTTTGGGGAATTTCCACATTTCTGTTCTTGAGGGGGTTATTGTTTTGAAACGCG<br>TGTTGGTTCCGCATTTTGTGGGGGTTTTGGGGGTTGGGGGGTTCTGGGGGGGGGGTGGGG<br>GGCTTTCCGTTTATGGGTGGGGGGGGGAAGGGGGGGGGGGGGGGGGGGGGGTTATG[<br>C/T]AGGGGGGGGTGGGGGGGGGGGGGGGGGGGGGTCTGTGGATGTTTCTGTTAGACAAG<br>TGGCCTCAGATATCTTAAGAAGGGGGGGGGGGTTGAATTAAGATATTCCAAACTACTTCC<br>CCAAGTAAAAACCTATTTCACTTTTTATTTAAGTTATAAATTTCCTTAACAATGAACTTCTTA |

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| >Gm08_32753756 | ATCGAGATTTTGCATCAAGGAAGGGTGATCCCATGCCATTCCCTCCTGGGGTTGGTGGAG<br>GACGCATAGTTGGAGATGCCAACCTTGATACTTTTGAGGTGATTACGGCCGAAAAAGCAAT<br>TGACGAAAACAATGTTGGTAATCGGATGCTTCGCAACATGGGCTGGCAGGAAGGATTG[G/A<br>]TACCGTTTTGTTCCTCCTCATTACATGAGTTTTTACGTATTACATTTTTTTGTTATTCAAGTT<br>GTTTGGTAGAGCTTGATATATTATTCCAAATTTCCTCTTTTCAGGGATATGCTAGTACTTTGA<br>TCCTAGACCTAGATAATATTTTCCTCTAGTTTAGATATATGTGTATATAATACA |
| >Gm08_42892150 | CCTCTGTTGAGATTAAAGCTTTCTTTAAATTCATCTGACATATGAAAACAATGGAAAACCTTA<br>AGCTTTGGTAACTTGTCAATACCACGAGGCACCTCTGTCAGTTCGCGAATCCTGAATAACTT<br>GAGCTTTTCGAGAGAAGGCAATGCTCCATCTTCAATTACGATGGATTTCAATTG[G/C]TACAA<br>ATCTGCCAGTAGTATTTGCTTTAGGTTTGGAAACCCCCTGTTTGGAAACTGCACAACTTCAC<br>TATTGTATGCATGAAGGAGTATACTAAGGTGCGTCAAATTTGGTAGATCTTTAAGTAGTGGC<br>AATGGATCATGTGTCAAGTCGGTGAATGACAAGGACAACGTAACAAGATTT |
| >Gm08_43848399 | CTGTTTGAGTCTTTGTCATACTTGTACTAAATGTTTTTTTTTCAATCTCCAGGTAGGCTTCAG<br>TTGTGCAATTTAACAGAGTGTGCTTAAGAAATAGTAATTTTGTATATTTACTGTAAATAAGAT<br>CAGTATGGGTGAGGAAGAACCAGCGAATGAAGTTTCTAAGATTGACTCAGATG[G/T]GAAGA<br>GCTTGCAGGAGAATACTTTGGATGAAATTACTGAGAAAAAGGACTTGGAAACTGATGGAGG<br>AAAAGTCTTGGAGAACAATGGAATCAAAGAGTTGAAAGAAAATATTGTAAAAGAAATTGAAG<br>ATAAGCAAGCTGATAGTATGGAAAAGGTAGAAGAGAGCAAGAAAGTTGATGT |
| >Gm08_43848818 | AGAAAGATGGGGTGGAAGAAGTAAACAAGGATATGAAAGAAGATGGGGTGGGAGAAGTAA<br>AAGAGGATAAGGAAGTTGATGGCGTAGAAGTAAAGGAGGGTAAGGAAGTTGATGGTGTGA<br>AAGAAGTCAAGGAGGATACAGAAAATTGATGGTGTGAAAGAGGTCAAGGAGGATAAGGA[G<br>/A]GTTGGTGGTGTATCTGGTGTGAAAGAAGTCGAGGAGGATAAGGAAGTTGATGGTGTGAA<br>AAAAGTAGAAGATAAAAAAGGTGATGAGTTGAAAGAAATAGAAGAGGATAAGAAAGATGAT<br>CATATATCTGAGAATGATAAAATGGATGAAGACACTGAGGTTAAGGAAACAATTGAAGGT |
| >Gm08_43870090 | ATTGTAGCTAGTTTTTATCGTTTATTTTCCCCTCTTTATTTGCACTTTGCTGTTTGAGTGTTTG<br>TCATGCCTATACTAAATGATGTGTTTTTTTAATTTTCCAGGTAGGCTTCAGTTGTGCTATTTA<br>ACAGTGTAGGGCACTGCGTGTTTACGAAATAATAAGTTTGTATAATTACTGT[A/T]ATTAATAT<br>CAGTATGGGTGAGGAAGAACCAGCGAATGAAGTTTCCAAGACTGATTCAAATGGAAAGAGC<br>TTGCAGGAGAAAACTTTGGATGAAACTACTGAGAAAAAGGACTTGGAAACTGATGGAGGAA<br>AAGTCTTGGAGAACAATGGAATCAAAGAGAATATTGTAAAAGAAATTGAA |
| >Gm08_43883437 | ACGCAGAACCACCAAGTCAAGCCGGTTCGTGACTCGGATTCTCAATTCCTCGTTCATTCCC<br>GAACGAATTTTAAATTCCGAAGAAAACCGCACCGAACACTGAATTTCAGATTCTGAACAAGT<br>TTCTTCCGCGAAACAGCACAGCACTTCAATTTCACGTGGAACAGAGACAAAGGGAT[G/A]CG<br>TGGTTCGAATTCTCAATCGATTTTCAAATTCCGAACAGCGAACAGTACTTCAATTTCACGTC<br>GAACTAGTCAAAGCGATTCAAATCGATTTCGCGAACTCGTCCGATATTTTCCCTGCACTGAC<br>TTAGTGATTCGTTTCATCTTTCTCAGCGCGTCTTCGATTTTTCCGTTAGTCGAT |
| >Gm08_43903972 | GCCCCAGAGAATTCAAGCAAATGACAAATCGTGATTTTCAGTTACTGTTTTTTCCTTCCAAA<br>GTGGAAAGCATTCAGAGAAATAACAGGCAGCATACAAAGTTATTCAGAAGTAAGCCGCCGC<br>CTCTTCCCATAATCAGCATCTCTTGGCCTAGAATGGTGTTCCTCCTCTTGCGATAA[C/T]TGT<br>GACTTACTGTGAGGCTTTGATGATCGTCCCCTCTCCCACTCATCATCGTGTTCTGCTTCCCG<br>GTCTCTGTACCTGTGATGATCTGCATACCTGTCCCTATCTTCTTTGTGCCTGTCACGCTCAC<br>GGTAATCCCTTTCGCGGTCACGATCACGGTCTCGAGATCGTTCACGGTCACGA |
| >Gm08_43960667 | GCCACCTTTGGGTGACCTTTTATAATTTTTTTTTTGTCTACTTTTTGGTGTTTATGTAACACTA<br>TCACATTGTCATTTTTCAAAATATTATCCATTAAAAAAAGAATTGTAATCTAATTGTGTAATTG<br>AAACATCTTTGAGGTACTTTCGTGATTTTGAGGTAGAAACTATCGGTTTAA[T/C]GGAGACAT<br>CAAGGCGTTGTTCAGTTGCCAAATGTGGGACAAGACTTAAGGATACAGTCCTTGACTGGGA<br>GGTACTACATTTTTCATTTGCTTGACGGTAATTTGGTTGAGTCTCAAAAATTATGATTCATTT<br>TGGTTGCAAGTTGTGCCACATGGGTTTTGTTGTTTACTTTGGTATTGA |
| >Gm08_43993352 | TTAGAGCCAATGTTGTTGATTTAACTGCAACAGATATTGGTAATCTTCCCTTGTCTTTTCTTA<br>GGTAGAGGCCTTGGTACACAGGTACATTGATAAGAACCAAAACTCCACTTAGTAGAACTTG<br>CAATGCCATTGTTTCATAAATTCTGAGACCCCCTTCACTTATGAATACTTGCTTT[G/T]GTAAC<br>ATTCCAAGAAGACAAAACAAATTGAGCAATGCAAGTGTTGCAAGTAAAGTGAGCATTGGGG<br>ATGAGTTTCCAAACTCCATAACTTCTTTTTCATATCTTTGGGAAACATTTTCTTCTGCTACCT<br>TTGCAGATATAACAAAGGCTGATTCTGAAAACCCGAAAAACTTCAAGATGA |
| >Gm08_43994262 | GGACAGGAAATGGAAATAAGCAATTTCAATATAAAATAACCCCAAGTGGTAAAAATGCCCTT<br>ATCTAACAGCTTAAAAAGAGATTCAGTCCTTAACAAACTATACTTGTGCTGCTAAGTGCTAA<br>GAGGGTCTCATATTAATTCATACCTGTGGAAACAAGGGAATGCCTTTGAGGAGAT[T/G]TAG |

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| | TGAAGGGATGATGCAGTAATACAGAGTTGGCCAGGAAAGAAGCACCCATAGATTATAGTAA<br>CAATATCCCATTTGGAGGCCTGGACTGATCAATCCATAAGCATACCATGCAGGACTATACTT<br>AGAAAGCACAATTTGAAAGCCTCCTTCAGACCATCTCTTATGTTGAACTAGTGC |
| >Gm08_45241690 | CGCGCCCCCGACGAACACGCCGGGAACGGCGGCCAGCGCCTCCGAGAACCGCCGCGTC<br>GGGCGCGCGATCTCGAACTGCGCGCGGAAGTCGAGGTCCACGAAATACCTGCATGTGGC<br>GGATCCGGTCTGGACCACGTCGATGAACTCGTGGCTTCCGCCGGAGGAGTCCCGCGCGG<br>TCT[C/A]GCACACCGCGGCGTCGTGCCTTCTCTCCCGGAGGAACGCCGCCACGCTCCGCC<br>GGAAGAGCGACGCGTTTCGCTCCCGAAGAAACGCGAGGCTCTCCAACGCCTCCGAAACGT<br>GCGCGATAAGTAAGTTTCTGTAAGGGTCCGCATTGTTGGAGTGTAAGAAAGAGAGACTCGG<br>CGAGTT |
| >Gm08_45620739 | TTCCTCACCTAGGATACAAACACTAAGGTAGTAAGGTGGTGTTATTTATAGATGCCAATAAG<br>AACAAAAATTGCAATAACAATTATAAATTACCAGGTGTTTTACATACAGAAAATGAAGCCAG<br>ACCCAAGAAGAAGTCAGTAGTGAACACTTAAGGCTTAGCCTTTAGTTCTCATAAT[T/A]GTGA<br>TGCTACCTTTTCCCCCTTCAATGTGAATTCTTGTTTTTCCAACAACGGGCTTCCCAGAAAAT<br>GCTGATTTTGGGTAAGCTGATGGATCTTCCATACTTTGTTGTTGGGACTTCAAAGGAGGTG<br>GTGGAGACAGAATGCGCTGATTTATTTCCTTCAGAGTGACATCTCCATGGGCA |
| >Gm08_45632650 | GAAGAACAACAAAAAGCTTCATTTGCCAGCATGAGTTTATTCTTCTGTTCTTGAAAACAAGG<br>GTCTAAGTGGACAATTAACAGTAAGCAGAGAGGATTCACAAATTTGTCTGGACATAGTGGTT<br>TCTGATTTACAATTGCCTATTTGTTCGTTCTTGCCACCTCAAATACTACTGTACT[C/G]ATGAC<br>TAGGAAGATTATAGACAAAAAGCATCAATTTGTTTGTGATTGTAATTTGCAATTTTAACTTGA<br>AAAAGTATTTAGATCTAGATTGTGGCACAATGCATTTTGATCTTTTACTCTTCCCTTTCTTCA<br>TTTAACTTGGGTAGTATTAATACAGATAAAGATCGTTCTTGATGAACAC |
| >Gm08_45819046 | CAAATATAGATTTGTTCATGACACAAATCTTTCACTATACAGTTAAAAGCACACCACTCGGA<br>ATCATGTCATTCGTAACACTTTATTCAAATGTATGCTGATATAGATGCATACCGTATATCCTA<br>TTATAAAAAGCAACACCACTCGACTATATAGTAGTTAGGTGACACATTTTCCCT[G/A]AGAAA<br>CTTGGAACTGAGGAACGTGATGCTCAGAACTCCCTTTCTGGAAACATGATAGGAGCTACGA<br>GAGACCACAAGTACAGCAGAGCAGTTGCCCAGGAAGTGATGATTCGAACCCACACAGAAG<br>GCCACCCCACGTCAACCAACTTCCCGCTCTCTCCAACAGATGTAGACCAACCAG |
| >Gm08_45828129 | GAACCCGCACGTTCCCCGTTAAAGCTTGATATCACAACATAGGGGCAACACAAGAAACCAT<br>ATATAAAGAAACTTAATAAGATGACATAAAATTCTAGAGCAAAAAAATTAAAACAACGTTCAA<br>GATTATCATATCTAGCGTCCAAAATGACCAGCAAAACTGAAATGTAGTTCAATTC[G/T]GTAT<br>ACACCTCAAACCAAAACTTGAAACACTAACTAGATACTACTTAATACTTAACAGGAGCAAGG<br>ATTTCAATTTGGGAACCAAGCTTCTCCTCTGCAACCTTCTCAGCTTTCACCCTCAATTTGGC<br>AAGTTGCTTCTTCCTCTCATAACACAATTGTGCTCTCTCCTTCCTTTTCTTC |
| >Gm08_45831798 | CAACACCCTAATAAATTTCATTCACCACTTCAGCATCTAAAAGATTGAACAACCAAATTCCAA<br>AACAAAAGTAGAAAGAAAAACTCACTTGAGAGCATCAGGAACAACCATCCTCTTGGTCTTGT<br>CATAAGGAGGAGGAATGCCCTCATACACCTTCAATCGCGCAAGAGCAGCTTCCC[C/T]GCG<br>CTTTGTCTTGTGTGGTATCATCCTGCAAACACAAACATCCGTCTTAGAAAACTTTCCACAAC<br>AACACCAGTAATCTTCATTACAAGTTCATAATGTCAACCATAAACACATTAGCCCCAAATAAT<br>GCAAAAAACACTACACATTAGCCCCAACATCAATAAAATCCGTCCCACTAGA |
| >Gm08_45844445 | GACCGTTCCATTTGAACTGTTTGACGAGATGGAGCGGATCAGGTTGATCCGACCCAATCAT<br>TATGTCGGCCAAACAAAAAATATATTATATCTTTAATTTGCACTTTTACCAAATTGACGACTT<br>GTGTAATACCTAGTCTCAGTGCCCAAAACAAAACCCCTTGCGTCCTCGCCGCACA[G/A]TTA<br>CACTCCGCAGCACACTGCAATCGCCACCACGGACCAAGCTAGTTCCGCCGTCGACGTCGT<br>CGGCCACCGTCACGTCTCGCCGTCAGGTGCCTCCCTCTGTTTCTTTGGGGTTCTGGGCAT<br>CTTTGTTTATTTGCCACGAATCTCTCTTTACCAACTCTTAACTAAAACTTGCTGATT |
| >Gm08_45905582 | CTTTGTACCTCAGGCACACAGGAGTTGTTGTTTATGGTAATGAGTATTACTTTGGTGGGGGT<br>ATTCAACACTCTCCTGCTGGATCAACTCCATATGGAACTCCACTAAGAGTGGTAGACTTAG<br>GTGTGACACATGTTCCCAAGGATGTCTTTGAAATGTATTTGCAGGAAATCAGTCCG[G/A]AG<br>TACCTGCCTGAAACATATAGTCTGCTTACTCATAATTGCAACAACTTCAGCAATGAGGTTGC<br>TCAATTTTTGGTTGGTGCGTCCATTCCTGAATATATTCTCCAGCTGCCCAATGAAGTCATGA<br>GCAGCCCAATGGGAGCTCTTATATGTGAGTTATTGCATTTCCATGTCACTTACC |
| >Gm08_45965493 | TTAACTGCACTACACAAAACTGTACCAGTTATCTCACTTCCATCTGAGAGACTGTCTAATGC<br>CTGTATAAATGAGTCCTAAAGACCTCCCAATCAAGCTAACTAAAAAGAATGAGATTGCATCA<br>CTCACTTTATCAATAACTGCTCTAATTAGAGGCATGGTGATGTCAGACAACTCAA[G/C]AAAG<br>AGGCTGAAATAATATCGCCTGCAATGCATAAATTAACAGCAATTATTACATTAATTGGATGA<br>AAATTTCTCGAAAATGAGTTTGATTCTATAGTGAGCATGGGTGCGAGAGGGTACCTTGATTT |

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| | GATTTAAAGTATCATGATCTTAACCAGCTAAAACTTAAGAGTAAATATACCC |
| >Gm09_5927324 | TCTTGATATGTTTTATCGACTACTTTGGATTTATTTCTGCCATCTGAATATGTCTGTTCAGTAT<br>ATTTAAGGTGCTCAATTCTTTCAACTGCACCATGTCCTTAGGTGATACATAATTAAGCAAGTT<br>AATTTACTCTCAACTTTTTCCAATACATGGTGTGTAATGTTGCTAGTCTCTT[T/C]CCAGGGA<br>GGCACTTTTCACCCTTTCTTGCAAGTCTGCTGGGTCTATGTTCTTTGACTTATCTTGCTCCA<br>AATGCTGAGTCTTGGAAGAATCTCTTCTTTCAATTGAACTTTCTTGTTGTTTTGTTGGAGGTG<br>GTTTAATCTGAGGTCTCTTATCCTGTTTTAAGACAAGTTCATGTGAAC |
| >Gm09_19158732 | GTTATTGATGTTGGTGTTGGTGTTGGCTGCTGTTGTTATTTCGGCCGACTCAGAATCCTCG<br>GCCGAGACAACAACAAAATTGTTATTGTTATTGCTGCTGTTGTTGTTTCCGCCGGCAAATTC<br>GATGCCAAAGAGGCGAATGCCTGACTTCTCTCTGACAAGAGGAGCCGGGCGGATGA[T/C]G<br>GGGAGTTGGGAGAACGAGTCGACGTTCATGAAGTCGTGAGTTTCTCTCTCGGAGGTTGTT<br>GTTGTTGATGATGTCTTGTCCATGAGAGGGACTAATGGGAGCTAGGGAGAGGTTTGTGAAT<br>TGTGATGTGAGGGTGTGTATATAGAGAAAGCTAGGGGAGTATAGTGTATGAAGGTGTG |
| >Gm09_30684887 | GACGGAGTTTGGCCCTCGAGTGCAAAGGCAGAAGGGAGCTTGATTGCAAGACCCACCCGT<br>CGATTATGGACAAAAGTCGGTCTTAATGATCTGACGATGCCGAGTGGAAGGGCCATCGCTC<br>AATGGATAAAAGTTACTCTAGGGATAACAGACTGATCTTCCCTAAGATCTCACATGGA[G/C]<br>GGGAAGGTTTGGCACCTCGATGTCGGCTCTTCGCCACCTGAGGCTGTAGTATGTTCCAAG<br>GGTTTGGTTGTTCGCCCATTAAAGCGGTACGTGAGCTGGGTTTAGAACGTCATAAGATAGT<br>TCGGTCCATATCCAATGTGGGCTTTAGAGCATTGAGAGGACCTTTCCCTAGTATGAGAG |
| >Gm09_30684888 | ACGGAGTTTGGCCCTCGAGTGCAAAGGCAGAAGGGAGCTTGATTGCAAGACCCACCCGTC<br>GATTATGGACAAAAGTCGGTCTTAATGATCTGACGATGCCGAGTGGAAGGGCCATCGCTCA<br>ATGGATAAAAGTTACTCTAGGGATAACAGACTGATCTTCCCTAAGATCTCACATGGAT[T/G]G<br>GAAGGTTTGGCACCTCGATGTCGGCTCTTCGCCACCTGAGGCTGTAGTATGTTCCAAGGGT<br>TTGGTTGTTCGCCCATTAAAGCGGTACGTGAGCTGGGTTTAGAACGTCATAAGATAGTTCG<br>GTCCATATCCAATGTGGGCTTTAGAGCATTGAGAGGACCTTTCCCTAGTATGAGAGG |
| >Gm09_39232035 | GAGGCGCCGCCGAGGACCCCTCCCTCGCCGGCCTCCACGCCGGCGGAGGATGACCTCG<br>GCGAGATTGTGGAGCTGCCGCCGCTGGGAACGAGTTTCGACTCGCCCATCGACCCGATGA<br>GTACCGAGTTCGTGTTCCTGGACATGGACGACGGGTGGCCCTATTCTCACCCATGGTACCA<br>[A/C]GGCATTTATGATGGTGGGTACTTGATTAGCGACATCAACAACATGGTTTCAATGCAAG<br>AGTCAGAGAGCATGCTTCTTTCCTTGTGGCCTTCAACTTAAGCCAATGCTATACTCATTCCA<br>GTATGATTATTTTTGCGTCAGTGATATGATTAACAGATCATCATGCTTTGATCTCTTTCT |
| >Gm09_42479372 | AACTGATCTGTATTCATTGTTTTCATACTAGCATTTTCAGAATTAATGACAGCATTAGCCACT<br>GAGACTTTGAACCTTTGTAGACTCATAACTTTCTCTTCCAAAGTACCACGCATTATTAGCCG<br>ATGGACATTAACTACTTTTTTCTGACCTAACCTGTGTGCTCTATCCATAGCCTG[G/T]AGGTT<br>ATTGGCATTACAAAAACAAATATTAGATATTCCATTCCCTTAAATGCAAGATGAGAAAAGCTT<br>CATGATGTTAGGCCTCAAATATAGAAAGGGCATGCAAGAAAACAGTATACGCACAACACAA<br>GATGTTAGCTTGAGCTCTAGAAAAAAGTGATTACAAGGTTGTGAAAAAAGA |
| >Gm09_46356127 | ACCGGGAGGTTTCGCGGTGTTCCATTTCGCGATCCCTAAAGATACGTATAGTTTCAATTCGT<br>TCCTTGATTTGTTCAATTGTTTCAAAGTAGTTAAGTTGCATGGCTTGGAAGGCTTTGATTCTT<br>CGATGCCGTATATACGTGAAATTGTTTTGAAGAAAGAGTGTGGTGATGGTGCTG[A/G]GAAA<br>TTCGATTTCGATGATTCAAATGGAAAGTGTTATGTTCCTGGTTATAAGCATGATTTGGTTAAG<br>ATAGCTGAGCCATTGATTGAGGAGGAGCCATTGAAGCCTTGGATTACATTGAAAAGGAATG<br>TGAGGAACATAAAGTACCTTCCTTCAATGGCTGATATAAGCTTTAAGAATAG |
| >Gm10_4227818 | AAGAAGGTTGGATCTTTCAGCATGCCCTCCAAGTCATGGCAATTGGAGCATTCTGATTCGT<br>CGGAGAAATGTGAAAATTCTTGTGGATCATCCTCAATTAGTTCACTTTCTAAACATTCTGAA<br>GCAAACGAAATAAAGCATGATGCAAAAATTCCAGCTTTGCCAGAAAATGTAGATCA[T/C]AG<br>TGACAATGTTTCAGAAGCCTCTACACTTATTCAGACCCACAATAGTCCATCCAGTACAAAAG<br>ATTGTGATTCTCAGAATACTGATAATTTCAGTACTAATTCAGAACAGGGTTGTTCTTCCCCAC<br>AAATTCTGAGACAGAATCCGAATCTGAGCTCTGGGAATTTGAAGAATGATGAA |
| >Gm10_6376650 | AGGACTGCATTTCAACTTGGCAAAATATGAAGGGGAAAAAAATACGCTGAATAAAATGATG<br>GCAAAACCCCCCCTTATAGGGGAAAATCATGAATATTCATGACACCTAAACAACATGCAGTT<br>TAATATCATATGATCTACAATTGATCATTCTATTATAATCAGATGCCAGGGAAAGA[T/C]AACA<br>AGTGTAATTTGTAAGTATTAAGAATCTTCCTTCTTCCGTTTTGAAGCACTTCCATCACTCTCA<br>TTTTTCCGCTTCGATTCTCGGCGCTCCCTCTTCACTCCTTTTGCTTTGTAAGGTAAAGGAGT<br>TTCTCCAACCTAAACAATCACAAATTGTTGTAACTGGTTAGATATCCTTCA |
| >Gm10_39929704 | GAAGTTTCCGAGCCCTTCGGGTCATAAAGAGTCAAATCTATCTGTTGCAACAACGACAACG<br>ACAAAAACACGATGGCGATTCAGAAGCTGAATTGAAGCTGTTAAGTGTTACAAAACATGGAT |

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| | ACATACACCAAGATCGCTTTTCCTGGGACATCTGGAGCACTTAACACAATTCACCC[G/C]CA<br>GAATGTCACTTCCTGTATCAACTTGCACATAATAATCCTTCGGAGGAGAGCCAAGCCCAAG<br>TTTCGTAAAATACAAACTAAACCAAATAAACAACAACATAACATAAGCATGAAATTAAGATAA<br>TCACTGCAAGCTTCTTCGTCATTCATATTTTAAAAAATCATAATAATAATTAAA |
| >Gm10_42374383 | ACATTATCATTTTCAACATTATTACTGCTCTATTGAGTTTGTAAAAGAATATTAATAGATGGC<br>AACCTCAAAGGTCTTAGGGGCTGCTTTCATTGTTTTGCTCATTGTGGACCTTGCGTTTGCTG<br>CTAGGGTTACAGATAGGTTACTTGGTGGGAGGGGTGGCGGTGGTGGTGGCGGCG[T/G]TG<br>GTGGCGGAGGAGGTGGCGGTGGTGGTAGTCTTGGACGTGGTTCCGGGTATGGATCAGGG<br>TATGGCTCAGGTGGGGGTGAAGGGTATGGTGGAGGATCACTAGGAGGAAGCGGCGGTGG<br>TGGTGGTGGCGGAAGAGGAGGAGGTGGCGGTGGCGGTGGTGGGACCGGCGGTTCTGGG<br>TA |
| >Gm10_42374384 | CATTATCATTTTCAACATTATTACTGCTCTATTGAGTTTGTAAAAGAATATTAATAGATGGCA<br>ACCTCAAAGGTCTTAGGGGCTGCTTTCATTGTTTTGCTCATTGTGGACCTTGCGTTTGCTGC<br>TAGGGTTACAGATAGGTTACTTGGTGGGAGGGGTGGCGGTGGTGGTGGCGGCGG[A/C]GG<br>TGGCGGAGGAGGTGGCGGTGGTGGTAGTCTTGGACGTGGTTCCGGGTATGGATCAGGGT<br>ATGGCTCAGGTGGGGGTGAAGGGTATGGTGGAGGATCACTAGGAGGAAGCGGCGGTGGT<br>GGTGGTGGCGGAAGAGGAGGAGGTGGCGGTGGCGGTGGTGGGACCGGCGGTTCTGGGT<br>AC |
| >Gm10_50508726 | ATGGGAGTGCATTAGGTGCTAAAGAAGTGGATGCTACAAGGAAGAATCTTGGATGGCCATA<br>CGAGCCTTTCCATGTGCCAGAAGATGTCAAGAAGTATGATGGGGAGTTAGAGATATCTTTG<br>TTTCCTCTTAGTCTGCTGAGATTTTCATGATCTAGAATGAAACTTTCTTTATTTTCC[G/T]TAG<br>GCATTGGAGTCGCCATACACCTGAGGGTGCTAAACTTGAAGCTGAGTGGAATGCCAAGTTT<br>GTGGAATATGAGAAGCAATACAGTGAGGAAGCTGCAGAGCTGAAGGCTATTATTACTGGCG<br>AATTACCAGCTGGTTGGGAGAAAGCACTTCCGGTGAGTAAACTAACAAACTTCTA |
| >Gm11_8599758 | GTCAGGTTTTTGTGATTTTGTAACAAGATCTGATTCTCATTTTGTACTACCGACATATGAGTA<br>GTTGGAAGAAGGTCAAGTGAAAATGCAGTCAAGATTGGAAGAAGAGGAAGAAGCGAAGGT<br>TGCTCTTATGAGTCGGATCCAGAAGCTAACCAAGCTCATTCTGGTTTCATCAAAGA[T/C]CG<br>CAATTCCAGGATATCTAACTGATGCTTCCAGCCATCAGCAGAGTCCTTCTGTTGGTGAGGA<br>TGATGTGAGTTCTTCCTTCAATTGGTGTGAAGTGTGTTTTACCGTTCTTTTTAAATAATATTC<br>GTTCTAGATGTGCAAGTACTTTGAACTCCTTATCATGATTAGCTGCAATATTAT |
| >Gm11_15759081 | GGGCACCCCACTGATATCATCCAACATGGGTGAATGCTCAGCAAACACCCCTTTCTTCACC<br>TTCTTGACAAAGGCAATGCAAGCAAGGTACAAATACTCATTAGAGAAATTCTCCAAAATATC<br>CTCATTGTGAATGGACTTGGGCTTCATATACTTGTGATCAATCAACTGCGAAGACC[T/C]AAA<br>TATGAAGGGCAAAAAATGATAATCATCAAGCCCCCACACACCATGGGACCCAACAGGCTCC<br>AAGCAGTACTGTAATTGCAGCTTCCTCATGAGGTCAANNNNNNNNNNNNNNNNNNNNNNN<br>NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN |
| >Gm12_5642827 | GGAGGAAACCAAGTCCAAACCTACGTTCAATTGCGCGGCGAGTTCGGTCAGAGCAATCTG<br>ACTACATTCCTGAAGCCTCTCGTTAATCTCTTCTGCAATCGAGTCCCAATAAGACTCCGACA<br>TAATTTCTCCCTGAGTCAACATCAGTTCTCCGTGTTCCGTTACAACGCTCTGAGCCT[T/C]TT<br>TCTCCACGTAGTACAAGTCAACTCCAGTAGCGTCAGCGAGATCGATCAAAGAAATGCGCCC<br>TAATTTCTTCACCTCCGCCACCATCTCGTTCCTCAGCTGATCCTAACAGCATGCACGATCGC<br>ATTAATAAACGTTCGACTAAGAATCAGCACAACATAGTAAACGAAGCACGGAAAC |
| >Gm12_9267296 | GTCGTGCCGTGGTCCTCCACGCCGCCGCCGCCGCCGCCGTCGAGCTCCTCCGGCAGCGA<br>ATGCTCGGAGTGCAAAAACAACGTTGCTTCTTTTTCCGCCTCGGAACAGGAAACGACAACA<br>TCCTCGTTGAAACGACAGCGCGAGGACGACGACGATGCTTCTTCCGATCCTGATCCCAG[T/<br>C]TTTGTTTTATTTTTATTTTTGTTTCGAACGAGGAATAATTATTTATTATTTACTTATTTTAGTT<br>TGTCGCTTGAAATCAGGGTGTTGAGAAGGGTTGGGCGTCTCAACGGAGGTTGCGTGTGAC<br>GGAGAATTGTCGTTGAAGGAAAGAGTGGTGTGGCATACGACGTCGTTTCGTGATGG |
| >Gm12_14154520 | AACTTAACTTCCATTCCAGTATAAGCAGATAGGCAGATACATCGTATTCACGTGGGTCTGCA<br>TGCCCCTAACAAAACTCTCCTTCCACTATCCATTAATACCATCCCCCTCCTTACCCTAATTTA<br>ACATCACACATCCAATACATTTCGTTTACCCACGCTCCCCCCTCTCTCTCTCTC[G/C]ACACT<br>ATCATACTACCACTCAGCTCAAAAAAAAAAAAAAAAAAAATATATATATATATATATATATATC<br>TTTTCTTTTTAATTTTATAATTTTGGTGAAAATAGCAAGAGAGAAAGGGTTGGAATTGGAAAT<br>ATCTTACCGGAGAATGGGCGACGGCAGCATCGTGGGCCACCTGCCGGA |
| >Gm12_14154521 | ACTTAACTTCCATTCCAGTATAAGCAGATAGGCAGATACATCGTATTCACGTGGGTCTGCAT<br>GCCCCTAACAAAACTCTCCTTCCACTATCCATTAATACCATCCCCCTCCTTACCCTAATTTAA<br>CATCACACATCCAATACATTTCGTTTACCCACGCTCCCCCCTCTCTCTCTCTCT[T/G]CACTA |

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| | TCATACTACCACTCAGCTCAAAAAAAAAAAAAAAAAAAATATATATATATATATATATATATCT<br>TTTCTTTTTAATTTTATAATTTTGGTGAAAATAGCAAGAGAGAAAGGGTTGGAATTGGAAATA<br>TCTTACCGGAGAATGGGCGACGGCAGCATCGTGGGCCACCTGCCGGAG |
| >Gm12_1<br>4158308 | ATCCAGGATGTTAAACCGAACACACTGTATAACTTACCGGCATATGTCTCGCAACATCTTTA<br>GTCTTCTCCGCCAGCTAAGCTTCTTCTTCTGACCGCTCACATGAATCAAGTAAAACAAAGAT<br>CCCATCTCCATGTATTCAGTCACCATTGACAAGCGTGGGGGCTTTGTGCATGCAC[A/C]AAG<br>AAATAAGATAACTGCATAAAATAAGATAACAGATGCTATCAAAGAAATCATGCTACATGAGA<br>TATTCTTACGACAATATATGCACAATATCATTCTTAGAATTTCAAGCAAGGAAGAATTTGGTA<br>ATAATTCCAGCTGTCAAAAATATCTAGAAACAAAATGTGCAAGATATCAATA |
| >Gm12_1<br>5498752 | TAACTTATTGTTTTTTCCCCTAGATTTCAATTTTGTAAAGAAATATAAACTGTTTTGCACTTTA<br>CAGGTTCCAGGAAATTTGATCATCTCAGCTAGATCAGACGCCCATTCTTTTGATGCTTCTCA<br>AATGAACATGTCACATGTCATAAACAACTTGTCTTTTGGAAAGAAAGTGACTC[G/T]TAGGGC<br>CATGAGTGATGTGAAGCTCTTGATACCATACATAGGTAGCAGCCATGACAGGCTCAACGGC<br>CGGTCATTCATCAATACTCGTGATTTAGGTGCCAATGTTACTGTAAGTTCAATATTTTATATG<br>AAAAACTTATAATTTAGTGTTAATTTTACTATTTGGCTTTTGTCAGTTGG |
| >Gm12_2<br>3879822 | TCGATCGACCTCTCCATCAACACTGACCCCAACTCCGACGAAGACGCCGTCAGCGCCGTC<br>AACAGTAACGACCACGCCAACGCCGGCAACAGCAAACGCAAGCTCGAGGACGACTTCGAC<br>GCCTTCACGGCGTCGAAGGCCGCGGATCTCGCGAAGCCGTTGAGAGAATCGCAAATTCC[A<br>/G]GTTCAAGATCATATTGTGAAGGATCACGACATGAAGGAGAGGCTGTGCTTGGAGGTGGA<br>GAGGCTTGGGTTGAGCGCGGTGATTATGGGGAGTAGAGGGTTTGGCGCTGTGAGGCGTG<br>GCAGCGATGGGAGGCTTGGGAGTGTTAGTGATTACTGCGTTCATCACTGTGTTTGTCCTGT<br>T |
| >Gm12_2<br>4557725 | AGTGGCATAGACCCAATTTGGGGCAGTCTCAGGTGTAACAGCCACCGGATACTTAATGCTT<br>GAAGGATTCACCGACACATTTAGGACCGAGCTGTTGACATGAAGGTATTTCCTATCATTCAC<br>CCAAGTCCTACCCAGGGTGTCATTTTGGGCAGTAATCAAAGGACCCCCCATGTTCA[G/A]GC<br>GATAAACAGTTTCAAAGGCAAGTTCAGAAAGTCCACTGAATGTTGCTGGCGGGTTAACAGC<br>CAGTGCATGATCAAAAAACAACTCATTCGGCATTGACACGACTTCAATTGCATTGACAAAGG<br>CCACTGAACCATTCGAAGGAATGAAGGTGACAACCAATGTATCAGAGGTAACATT |
| >Gm12_3<br>2742628 | ACAATAAGCAAAAATCTTCAGAAACATTTAATCAAGCATCTTGTAGGCAGAAATTGAATAGT<br>GCTAAACATGGAGAAACTTACAAAACTTCATTTGGAGGAGATCACTTGACATTGAACTCCCT<br>ACCTACACCAACCTTAACCGTCTCGTTTCCCAGGTGATTTCATCCCTCACTGCCT[G/A]GTT<br>GAGGTTTGATGGAGCACTAAACGTTGATGTGACAGTTCCAAACCAACTTGGTTCCTTATCCT<br>AGGATCCATTTCATGCTTTCCTCATACGCCCCTGTTATCACTGCTGAGAAAGCATACCATGA<br>GCAGCTTTCCGTTGCTGAGATCACCAACAGTGCCTTTGAGCCATCCTCCATGA |
| >Gm12_3<br>8201850 | TTGCAATGCTGCTGTTTACTTGCCAACTGCTAAGGAACCTACCTTCACTGCTGAGGGCTTTG<br>AACTTAGTGTTGGGACAAATCATCTGGGGCATTTCCTCCTCTCGCGCCTGTTGCTTGAGGA<br>CTTGGAAAAATCCGATTACCCTTCAAAGCGCTTGATCATCGTTGGTTCAATAACAG[T/C]TCT<br>AGTTCATTAGCATGTTTATTGTGAGTTCCAGTTCTTATCACACCATTAGGTTGCATTTCTTAT<br>GCTGATTGTGTGTATTCAACAGGGAACACAAACACATTGGCTGGTAATGTACCTCCCAAGG<br>CTAACCTTGGTGACTTGAGGGGACTTCAGGGTGGTTTGAATGGGCTAAACAGC |
| >Gm13_1<br>275756 | TTTCCTTAAAATTTAATGAGTCAGATTTGAGAAAGTTGACATAAGCTTAAGAAGCACGGCCA<br>AGATATTAGGGACAGTTTGTTGCGTGGCTGGAGCCTTAACCATGGCATTGGTCAAAGGACA<br>GAAGCTGTTACACACGGAGTTCCTTCCTTCTATACATCTCACCGGCAGTCAAGGTG[T/C]TG<br>ATTGGCTGCTGGGTTGCCTATTGCTCTTAGCAAGCAGTGTTTTTTGGTCATGTTGGATGATC<br>CTGCAGGTAAATAAAAGCCGATTTATTTTCTCATCCTTCCTTTGATACAATCGATGAATAGAA<br>AATTTATTATGTCATATGAAATTATCACATAATTATAATTCAAACAAATATCT |
| >Gm13_9<br>272222 | ATGAATGAATATGCATAAACAATTATTCTCTTGTGATATTTGAGTAACGATTATTTTATTTATT<br>TTGTCAGAACAAGGCACAACTGGTTGTGATTGCTCATGACGTGGACCCAATTGAGCTGGTG<br>GTCTGGCTTCCAACATTGTGTAGGAAGATGGAAATTCCATACTGCATTGTCAAG[T/C]GCTA<br>CTCTAACAATCATGAGCATTGTGCAGCAAGATGTTTGAAAGGGCAGTCAAACAGGAGAATT<br>ATTTCTACGGATGAAGTTAGAAAACACCAGATCTGGCCAAATGTGGACTGTATTAAAAGGCA<br>GTGTTTATAAAATATCTCAGCATATGAAGTTTCACCTTGAAGGTACTGCTATA |
| >Gm13_9<br>272223 | TGAATGAATATGCATAAACAATTATTCTCTTGTGATATTTGAGTAACGATTATTTTATTTATTT<br>TGTCAGAACAAGGCACAACTGGTTGTGATTGCTCATGACGTGGACCCAATTGAGCTGGTGG<br>TCTGGCTTCCAACATTGTGTAGGAAGATGGAAATTCCATACTGCATTGTCAAGA[G/C]CTAC<br>TCTAACAATCATGAGCATTGTGCAGCAAGATGTTTGAAAGGGCAGTCAAACAGGAGAATTA<br>TTTCTACGGATGAAGTTAGAAAACACCAGATCTGGCCAAATGTGGACTGTATTAAAAGGCA |

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| | GTGTTTATAAAATATCTCAGCATATGAAGTTTCACCTTGAAGGTACTGCTATAA |
| >Gm13_21371345 | AGACTGATTCGAAACCTCAATCAGAGCTTTCACCTATTGTCCAAATACTGCACAAACAAATT<br>GAGTCAAGTGCAAACAAATATTGGGAGGTCAGATGAAACCAAATTACATTTCTATTTCTTTT<br>CTACAAAACTGTTAGTACAATCACAAAATTTCCATAAAAAGATTAATACAAAAAA[T/G]TGCCA<br>CCATATTTCTTCTTTCCAAGCCAGCTAAAACTGACAACGGCAATACCCTGGAGTTTATATCT<br>GAGAATCCTAACAACGGCATTATAAGACAGTTATGGTAAAAGAGCTTTCAGTTGTGCTTGGC<br>ATAAATCACCAAGAGCTCCCCGAACGTCCATCTGATCACACAGGATTATCA |
| >Gm13_31847248 | CCTCTGGCAAATTCTCTACCAAAACAGTATATAACTAGAGTCCAAGAATAAGATGCAGGATA<br>ACAGAGAACAAACCAAAAAAGAGTATAAAGCTCCTTAAGTAAATACCTTATGATCTCTAGAT<br>TCATTGAAACGAAGTGGATTGAGCCGCTTGACCCTTCTCCCATCACCACTAACAA[A/C]CTG<br>CAGTCCCCATGGGAGAATTTTTTGCTTAGGACTTGAAGTATAGATTGCAATGCAGTTCATGT<br>TGACAAACAAGGAAGGAAGAATCATACAAGCAGTGAAGACTCCTTCAGTGCAGCAACAATA<br>AATGCATGGTCTCGCGTGAGCTTCTTTATTTTTCTAAAAGAAGCAATTACTGAT |
| >Gm13_35524268 | AGTGATCAAATGAATAGTGAAACTCTGATTCTGATTGGAGAGTGATACCAAAAGTAATTAAA<br>GAAACTTCTGGCTCTAAGTATTGTGCTTTTTTTATTTGTGAGGCATTTTGGTTATTGCATTAT<br>GTGTTATGCTGTAATGCATGCAGGCTGCAAGGAATGCTGGCGTGCCAGTAGTGT[G/T]TGAT<br>GCGGGGGGCATGGATGGGCCCCTTCCACCACAATTATTGAATTTTGTTGATATTCTGAGTC<br>CTAATGAAACTGAACTTGCTCGCCTTACCGGAATGCCAACAGAAAGTTTTGAAGAGATTGC<br>ACAGGCTGCTTTGAAATGCCATGAATTGGTCAGTTCAAGTAATGACTTTAGGGG |
| >Gm13_35524361 | TTATTTGTGAGGCATTTTGGTTATTGCATTATGTGTTATGCTGTAATGCATGCAGGCTGCAA<br>GGAATGCTGGCGTGCCAGTAGTGTTTGATGCGGGGGGCATGGATGGGCCCCTTCCACCAC<br>AATTATTGAATTTTGTTGATATTCTGAGTCCTAATGAAACTGAACTTGCTCGCCTTA[A/G]CG<br>GAATGCCAACAGAAAGTTTTGAAGAGATTGCACAGGCTGCTTTGAAATGCCATGAATTGGT<br>CAGTTCAAGTAATGACTTTAGGGGTCACAATGAAATGATTCTGCACACTTTTCTACTTGAAT<br>GCCATATTCATTGCTTATGGATAGACAAGGTTTTAGATTGCGGTTATAGTTGCAA |
| >Gm13_35526193 | ACATAATTAACTTCATTAGATGCATAATGCATTCCTAGTACAATTCATGAGTCCATTTATTAA<br>AAATTTCTCTAGTCTGTTGATCCTGGTCTGCGAACATAGGAGAATCTGTTAGTTCACTTCCC<br>TATTATTGGTTGTTTTACACAGGAAATACAAATCAGTGAAGATTTTGAAACGCA[G/A]TAGGA<br>ACAGGAACAGAATAACTTATGGCAGAGAGAAAGACCCTGGAAAATGGCAGCAAGTAAAGCA<br>AAAGCCCTTTTACAGAGCATTTCTGCAAGAAGGATTCTTCAGCATAATAGCTTGTTGTCATT<br>GTAATAAGATTAGGCCAAGCACTTACCCTTTGGCAATAGAAAGAAAATGAAG |
| >Gm13_35526194 | CATAATTAACTTCATTAGATGCATAATGCATTCCTAGTACAATTCATGAGTCCATTTATTAAA<br>AATTTCTCTAGTCTGTTGATCCTGGTCTGCGAACATAGGAGAATCTGTTAGTTCACTTCCCT<br>ATTATTGGTTGTTTTACACAGGAAATACAAATCAGTGAAGATTTTGAAACGCAT[G/A]AGGAA<br>CAGGAACAGAATAACTTATGGCAGAGAGAAAGACCCTGGAAAATGGCAGCAAGTAAAGCAA<br>AAGCCCTTTTACAGAGCATTTCTGCAAGAAGGATTCTTCAGCATAATAGCTTGTTGTCATTG<br>TAATAAGATTAGGCCAAGCACTTACCCTTTGGCAATAGAAAGAAAATGAAGA |
| >Gm13_35582717 | ATATGATAATATAACTCTACTGATACTTCATTATTAGAACTGGAACTGATTACATGATGGATT<br>AAGTATTCAGCATACACACTTATCCCCTAACAAATATTGCCTATGGAACAGAACTAACTGTA<br>GTTTCTAAAGAATTTGAGCATTGGGAAAGCACAAGGGGAGCTTCAACCTGCATC[T/C]TCAT<br>TTGATTAAACTTGAGCGCTAATATGGGTTTTGATAACATCACACAAGTGCTGAAATTCTGTG<br>CATCATTTTTGTGATCTTTAGCTACATGGCTACTGCTTCCATAATCTTCTAATGACAGTTCAG<br>TGTCATCATTTGTTGAAGGGAATGCTCCTGAAACCTTCAAGGGCTTCAATG |
| >Gm13_35582814 | TATTGCCTATGGAACAGAACTAACTGTAGTTTCTAAAGAATTTGAGCATTGGGAAAGCACAA<br>GGGGAGCTTCAACCTGCATCATCATTTGATTAAACTTGAGCGCTAATATGGGTTTTGATAAC<br>ATCACACAAGTGCTGAAATTCTGTGCATCATTTTTGTGATCTTTAGCTACATGGC[C/T]ACTG<br>CTTCCATAATCTTCTAATGACAGTTCAGTGTCATCATTTGTTGAAGGGAATGCTCCTGAAAC<br>CTTCAAGGGCTTCAATGCTTGCACCCTATTCAATATTTAGATTGATAAGATACTTTAGACTAC<br>TTTCAGGCTCATATGTCAAAAAACATAATATTGATTAATTTCTTTGTGCCT |
| >Gm13_35600102 | TAATAATGTAAAAACTGGCCATCTGTACCTACAACTACAAGTACCACGTACCAGTACTTGTA<br>CCAGATATATGGTAACTATGATATAGACAATTTCAAGTTATTCATTATCACAACTTCTGGTCT<br>CTCTCAAAGATGCAACGGTAATTGCTCTCCTATAAATTGAATCAAACAGACAGG[G/A]ATGTT<br>GCCAACTCCAGTTTCAGACCACATCTAGCAGCAAAAGGTCATTTCTAACTCTGATTCTGTTT<br>TGTGCAGGAACAAGAAGTTGTCACTGTAAGAATAGTCTCAAAGATTAATGAAGTTTGCCTTT<br>TCTTATTAGCATTAACAGATAGACATTGAGATTTTAGATGTAATGTTGATT |
| >Gm13_35617464 | GTGATAATTGCTGCACGGAGCAACAACGAGATGGATGCATCCAAACTGAAGAACGAGTTCC<br>CTGAGCTTCTTTCCATCAAGGAATCACTGATCAAGTATGTCTTTGAGCCAAACAAGAAAACT |

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| | GCTTAAATATATTAAAGCGGTTTCATGTTTTAGACATCACAGATTATGCATTTTTG[G/A]GGC<br>GGGCTACATAGATCACTCATTATTTCATTGTTATTTTGTTGGGTTTTGATAAGAACCATACTA<br>CAAAAGCTAGCCATGTAGTTCTTGTTCTCTTAGCTATAAGCGATTCCTGTTTCAGCATATTTC<br>CATTATATTACCGTGTTTAGAGGGTGACAAGTATTATAACTGGGCCAGATA |
| >Gm13_35618692 | ACATCATAATAATAGCAGTACAAAAATAAAAAACTTACATCATAATTAACTCGATTACTGATT<br>GATGTTAAAAAGAATAAGTTATATCATAACTAATTTAAAAAAAAATATTTTTACGATAATTAAT<br>TTGATTATTATATTGTCTAAAAAGGTTAGGATGTGAAGTTATGATTATGGGG[A/T]GCCCCCG<br>TAGAATAAAAGCAAATCGTGTACAAGAGAGTAAATTTGGCAAGTTGCAATGTTGGCAATATA<br>GGGAATTTCTGAAGCTGGGTAAGTCTCAGACATTGGCTAGTTCCTTGAGAAATGCAACAAC<br>TTCATCTGGTGATCCAAGCGTATACCGAGCATTGGTCTGTGTTCGTCCAA |
| >Gm13_35690746 | ATTTCTATTGTGCTAGGTGAATTTAACCCAATTTTTATTCTGAATTTTCAGCCTCCTTAATTCT<br>TTATCTATTCATTTGTAACTAAACCAAGAACATCCTAATTTTTGGTTCCCTTTTGTGAAATATA<br>GATGGCATGCTATTGCTTCTTGGACTTGGGATGCACAGGACGAAACGTGTG[A/G]GATTTGT<br>AGGATGGCCTTTGATGGATGTTGTCCTGACTGTAAACTTCCTGGAGACGACTGCCCGCTGA<br>GTAAGCTACTGATAATTTTACATGGCGATAGACATTGTTATTTTACTTGAATCCATTTGTCTT<br>GGTTAAATTTCTTGATTGATCATTGTGTTTTGGGAATTTTCCAGTAAAG |
| >Gm13_35759476 | ATTGTCCATAGAAAGCAAAGTTTTATTTTGCACGATATAATAGGCGCCAGCGTCATTATCCA<br>TAAAGTTACCAGTATTGATATATGCCCAATTTTTTGTTCCACTTCGGTGAAATCTTGCTGGAC<br>CTCCAGTATCTGAATCATCATCATATGTGCTTCCATTGTCTGTTACTATCTTTC[C/A]ACCACA<br>ATTTATATGAAGAGAATATAACGCTGTGATAAAAATTAAAAATAAAAGTTAGCAATAATTAAA<br>ATATTATTTAGAAAAATACATTCCTTCAAATTGTATTTTTCTATTCCTTTTCTTTTCTACTCAAA<br>ATAAAGATGCAGTGGAGTTATGTTAACTTATATAGGTCTAACTAGT |
| >Gm13_35789590 | TTTGCCCACTCTCTTTGTTCTCTCTTCTTGTTTAGCCTCTGTTCCGTTTATTCTGCTTGCCTT<br>TTTTTTTTTTTTCTTTTTCTTTTTCATTCAATTCTGAAACTCTCCTTTTCAAAACCAAGATACG<br>GTGGTTCTTTTCGGATCCTGACAAACCGCCGGACCATGATGCGGTTTGTGAT[T/C]CCTTCA<br>AGCAGCATACGTGTGTCGACTATGCTCTTCATTTTTATGTTCCTGGCTTCCCTACACTTTGG<br>ATCCAACGCTCAACTCATACCACAAGATGAAGGTACTTAATTCATTTCCATTTTTGTTTTTTT<br>TTTGTTATGATTTTTGATATGTTACTATCTCTGTTCGAAACACTTTTGT |
| >Gm13_35789620 | TTTAGCCTCTGTTCCGTTTATTCTGCTTGCCTTTTTTTTTTTTTTCTTTTTCTTTTTCATTCAAT<br>TCTGAAACTCTCCTTTTCAAAACCAAGATACGGTGGTTCTTTTCGGATCCTGACAAACCGCC<br>GGACCATGATGCGGTTTGTGATGCCTTCAAGCAGCATACGTGTGTCGACTAT[G/A]CTCTTC<br>ATTTTTATGTTCCTGGCTTCCCTACACTTTGGATCCAACGCTCAACTCATACCACAAGATGA<br>AGGTACTTAATTCATTTCCATTTTTGTTTTTTTTTTGTTATGATTTTTGATATGTTACTATCTCT<br>GTTCGAAACACTTTTGTAACTATATATAAAGTGAAACTGTCTCTTAA |
| >Gm13_35815670 | GATGTCGGAGGGTTCGGCCACGCGAACTGCGGAGGGCTCATATGCGTATGAATCAAACCG<br>CTGAAACCCTGGGCAAGCCGGTCAGCCAGGTCCTGCCCGTGACGCTGCACCTCTTCCCAT<br>GCCTCAAACGACCTTTCCACAGACATTTTCTTCTTCTTCTTCAACAAAATTCACTAACT[T/G]C<br>CCATAAGACCTAGGGTTTCACTTATACTCCCAAATCTAATTAGAAGACAACAAATAAAAGCG<br>TAAACGAACTGAATCTAAATCTAACTCTTTCTTATCTAATCAAAGGAAAGAACAAATTCGTCT<br>TATTCACAAGGGTTTAGGGTTTCGGTTTCAGTAGTGTTTGCAAATCTAATTAAA |
| >Gm13_35819710 | ATTCTTATTGGTTACTAGTAATAAAACCCTTTACACTATCGACTATCAATCCACGTTCAAATT<br>GATCATGTAATAATGGTGGAGTACCTGGTCTTTGAGTTACCAAGTGTGAGTTCAAGATCATC<br>TGATCCAAATTCCTCATGGATCCTTTCTCCTTCCCAAGGCTTGACAAGCCCCAA[C/T]GTGTT<br>GCTTCCAAATGCAAATTCATCTGAAACAGCTTCAGACATAGGAATGTCAGCATTTTGATCAG<br>AGCCAGGTGGAATAGCAGGAGAGCATGTTCCACTCTGAGCAGGAGTCCACATTCGCGAAC<br>CGCTTCCGGGCAAGCCATCTTCCTTGAAGGCAAAAGGGTTTGAGGAGACCAAG |
| >Gm13_35823484 | AGCCTCGTCCCCGACGTCATCGATCTCAGACCTCAAAAAAACTCAAAAGGGTCCTCCTCAA<br>ACCTCCCAAAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAAATAGCCTTCTGG<br>GTCGGTCACAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTTGTGTTATAA[A/G]A<br>AGAATGTGGAGGAGATGGTTGGAAGTGGCAAAGTCAGCACATTTGGTGGATTTGGGAAGT<br>GGGTTTGTAGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTCGGAGAAATGGGAA<br>ATGGTTTTGATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGGAGGAGAAGAAGAAG |
| >Gm13_35823512 | GACCTCAAAAAAACTCAAAAGGGTCCTCCTCAAACCTCCCAAAGAACACAACTTTGGACCA<br>GATTCGATCCAACAAAGTTAAATAGCCTTCTGGGTCGGTCACAAATTGAAAAGGGTGTGTG<br>TGTGTTAGAAGAAGAAGGTTGTGTTATAAGAAGAATGTGGAGGAGATGGTTGGAAGT[C/T]G<br>CAAAGTCAGCACATTTGGTGGATTTGGGAAGTGGGTTTGTAGCCGGAGAGTGATCGGAGA<br>TCGGAGGAGATCTGGGTCGGAGAAATGGGAAATGGTTTTGATGAGAGTGTGTGTGGATGT |

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| | GTGTGAGAAAGAAGCGGAGGAGAAGAAGAAGAAAAGGAAAAGAGTGAGGAGGAGGAGGC |
| >Gm13_35823533 | GGTCCTCCTCAAACCTCCCAAAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAAA<br>TAGCCTTCTGGGTCGGTCACAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTTGT<br>GTTATAAGAAGAATGTGGAGGAGATGGTTGGAAGTGGCAAAGTCAGCACATTTGGT[G/A]G<br>ATTTGGGAAGTGGGTTTGTAGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTCGGA<br>GAAATGGGAAATGGTTTTGATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGGAGGA<br>GAAGAAGAAGAAAAGGAAAAGAGTGAGGAGGAGGAGGCACTTGATTAGCCAAATTTGCG |
| >Gm13_35823553 | AAGAACACAACTTTGGACCAGATTCGATCCAACAAAGTTAAATAGCCTTCTGGGTCGGTCA<br>CAAATTGAAAAGGGTGTGTGTGTGTTAGAAGAAGAAGGTTGTGTTATAAGAAGAATGTGGA<br>GGAGATGGTTGGAAGTGGCAAAGTCAGCACATTTGGTGGATTTGGGAAGTGGGTTTG[G/C]<br>AGCCGGAGAGTGATCGGAGATCGGAGGAGATCTGGGTCGGAGAAATGGGAAATGGTTTTG<br>ATGAGAGTGTGTGTGGATGTGTGTGAGAAAGAAGCGGAGGAGAAGAAGAAGAAAAGGAAA<br>AGAGTGAGGAGGAGGAGGCACTTGATTAGCCAAATTTGCGGATCAAATTCATGATCACGG |
| >Gm13_35835277 | TCCTCTTCTCGCCGGAAAAATCAAAGAAGCTCCGAAAAGAACAAAGGAACAAAAAAAGAAA<br>CACACACACGCGAACACGAATGTTAGAAAGAAACACAGCACACAGCGCGAGTAAGCGAAT<br>TATAGAGGAAACGACATCCTTTCTGCTTTTTTTATATAAGGTGAGCTAAAACGACGAC[G/T]T<br>CGGATTTGAGAGATTTGGGATTGTGATCTGAGTAGATCTAGGCGAGGGAGGTTGGGTGGT<br>GGAGGCGGAGGAGCATGGTGGCCGGAAAAGCCGCCGGAAAAGAGAGGAAGTGGGTTTGT<br>GTTAGGTGTGAACTGTGCACAATGGGGAGAAGAGAAGGTTGAAGGAGCGAAAGAGAAAGA |
| >Gm13_35849515 | TTTTGTGCTGTCTTTGAAGGTCTTAATCTCTTGCTCTAACTGCTTCAGGTTGTTCTTGAGTTC<br>GGTTAGGGTTTCGGAGGCAGTTTCTTCTTCTTCTTCTTCTTCTTCGTCGGAGGGGGTGGGT<br>TTTTGGGAGAGGCCGAGGGCTTGGGTGAAGAGGACGTGGAGGGGCTTTTTGGTGG[G/A]C<br>CCGGCAAGGGTTGGGGTTGGGGTTGGGGTAGGGGCGGGCTGGGAGGAGGTGGGTCTGG<br>AAGGGATTTTGAGGAGGGAAAGGGAGAGGGTGCGGCGAGAGAAGAGGGTACTGAAGATA<br>CCCATGGAGGGCGCAGTGAGAAACCTAGAACGGAAAAGGGAGGCTTTATTTATGGGCTTC<br>TA |
| >Gm13_35862124 | ACTAATTAATGTCTTATGCTACCAAAGCACTCATACAATCACTAACAATGACGAACACTCAA<br>AATCACTAGTCTTAATTAAAACATCTATCAAATATGTTTTCTGAAACTTTGCAATTTCTAATTC<br>TCTAATTGCCCAATTTCTTTGCCGCGTTAGCTTCAACCCTAGCCTCGTCATTT[A/T]TTTTGCT<br>TCCGTTGTTACCATTCGGCATTTTTTGAACCACCTCATTATGTTGTCCACCTTTCCCCTGGC<br>TGATGGGTGACCCTCTTTTCCCTCCAACGCTTCCATGGCTGGGGCCTGACCCTCTTGTTCC<br>TCCGTGCGTTCTCACTCTAAACAACAATAACGTCAGTTCTTAATTCATAT |
| >Gm13_35862205 | AACATCTATCAAATATGTTTTCTGAAACTTTGCAATTTCTAATTCTCTAATTGCCCAATTTCTT<br>TGCCGCGTTAGCTTCAACCCTAGCCTCGTCATTTCTTTTGCTTCCGTTGTTACCATTCGGCA<br>TTTTTTGAACCACCTCATTATGTTGTCCACCTTTCCCCTGGCTGATGGGTGAC[G/A]CTCTTT<br>TCCCTCCAACGCTTCCATGGCTGGGGCCTGACCCTCTTGTTCCTCCGTGCGTTCTCACTCT<br>AAACAACAATAACGTCAGTTCTTAATTCATATTTCATTTTATATATATATGCAGAACATCTAG<br>CTAAGGCTGAATGAGATTTATGCATGTAAAGAGTGTTTAACTTGATCACT |
| >Gm13_37094557 | AAGACCAGCCTTGAACCCTGTCCTTCCAAGGGAGCAGGTTAACATAGCCGAGTGGGCAAT<br>GAGTTGGCAGAAGAAAGGAATGCTTGATCAAATTATGGATCAGAATCTGGTGGGGAAAGTC<br>AATCCTGCTTCTCTTAAGAAGTTTGGGGAGACAGCTGAGAAGTGCTTGGCCGAGTATG[C/T]<br>AGTGGATCGGCCGTCTATGGGCGACGTCTTGTGGAATCTTGAATATGCTTTGCAGCTTCAG<br>GAGACCTCATCAGCACTCATGGAACCTGAAGATAACAGCACAAACCACATTACTGGAATTC<br>AGTTAACACGTCTCAAGCCTTTTGATAACAGTGTCAATATGGTTGATGGGGGAAACTC |
| >Gm13_42335929 | GTCATGGTGATCTAAGATGAACAACTTCTTGTTTTGGATAGCCTGTTCAACCAAGTACAATT<br>AATTAATTGCTATTCATTGGAATTACATTAAAAAAAACACACACACAAATAGATAAAAAGCAA<br>TAGAAAAAACATTATGGTGAAACAATTTTAATGTGAAACCAAATACTCATATCA[T/C]TACCTG<br>CTCAACAGTGAGCCCACCTAAGTTAGGCTCCAAATGTTCTTTTGCTATTATACAGGTATGAT<br>CACCATAGGCTTGAGTATCTAGCTTGCTACTTAGTGGGAACTCCTGGAATAAATTTATCACG<br>CAATGAATGAGGATAGCACTCCCAAATTGCATCCAAGCTTTTGGTTGCGT |
| >Gm14_2683857 | CTTGTTTCAATGTTTTTATTTATTTTTTATTTTTTTATTGTTGTTCTTTTATTGCCTTAAATTTTA<br>AGAACATATAAGCCTTATTCATTCTCATGTTTCAGGTATGTCATGAGCCCCCCTATTAGGAA<br>ACGAGGACATGATAAGGCCCTTCAAGCTGCCCTTTCAACCGGCGTTTTGCA[T/C]GTTTCAC<br>ATTATGATTCAGGCTTAGGTTCAATAACCAATTAAAGATGAGGGTTTGAGTTTCTCAGGATA<br>GTCTCAGCTATGAAATACACCCTTCAAGCTTCCCTCAGCTCAATTTTATTCGTTTTACTTAGC<br>TTGTTTATTTGACCAAAGGATACCTTTTTGAAATTTGCAGCTGGTAGG |
| >Gm14_2 | TGTTTCAATGTTTTTATTTATTTTTTATTTTTTTATTGTTGTTCTTTTATTGCCTTAAATTTTAAG |

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| 683859 | AACATATAAGCCTTATTCATTCTCATGTTTCAGGTATGTCATGAGCCCCCCTATTAGGAAAC<br>GAGGACATGATAAGGCCCTTCAAGCTGCCCTTTCAACCGGCGTTTTGCAGG[T/C]TTCACAT<br>TATGATTCAGGCTTAGGTTCAATAACCAATTAAAGATGAGGGTTTGAGTTTCTCAGGATAGT<br>CTCAGCTATGAAATACACCCTTCAAGCTTCCCTCAGCTCAATTTTATTCGTTTTACTTAGCTT<br>GTTTATTTGACCAAAGGATACCTTTTTGAAATTTGCAGCTGGTAGGAA |
| >Gm14_3559049 | AAGTCCGAATGTCCCAAAGAGCTTGAGCCAGCAGATAGGAGGACTGCTGTCCATGTCAAC<br>CTCACAAGGCGGGATGAAGACTACCCTGTATTCCCTTTTCTATTTTCTAGTTTTTTGCATCTA<br>TCTATCATCCTATTTAAGGTTTTTACATTTTCTTTTTCCTTTTGCCAAAATGTATG[G/C]AGGA<br>ACCAGTGAAGCCACGCCATCGTGCTTTCCAGGGTGTTGGAAGAACTTTAGGTAGCACCAG<br>CTCCAGCAATGATGAACCTATTCAAACAACTGGTGCTTCACCAAGTACTGCTCCATTGCCAA<br>CAATGGGTTTAATTGTAGATGAGGCACAGTCAGTGACATCAATCCAGCTGAGGT |
| >Gm14_3559050 | AGTCCGAATGTCCCAAAGAGCTTGAGCCAGCAGATAGGAGGACTGCTGTCCATGTCAACCT<br>CACAAGGCGGGATGAAGACTACCCTGTATTCCCTTTTCTATTTTCTAGTTTTTTGCATCTATC<br>TATCATCCTATTTAAGGTTTTTACATTTTCTTTTTCCTTTTGCCAAAATGTATGC[T/G]GGAAC<br>CAGTGAAGCCACGCCATCGTGCTTTCCAGGGTGTTGGAAGAACTTTAGGTAGCACCAGCTC<br>CAGCAATGATGAACCTATTCAAACAACTGGTGCTTCACCAAGTACTGCTCCATTGCCAACAA<br>TGGGTTTAATTGTAGATGAGGCACAGTCAGTGACATCAATCCAGCTGAGGTT |
| >Gm14_27341132 | GGTGAACTCATAGATATGAGGCTGTATAGAAGCGGATGCGTGACGTGGAATGGTGATTTGT<br>AGATATGAGGTTGTATTGTTACGTCTTGCTTGCTCGGGAATTTGAAGCCATAGTTTGAAAAT<br>CCAACACCTTGAGGACAAGGTGTTTTTGATGGGCTCGGGAACCAATGTTACGTCTT[A/C]AA<br>ATTCGAGGACCAAGACAAGCTTATTGAGAGAGAAGAAGAGAGAGCTTTTTTGATATTTCTTT<br>CTTATACATATATATATTGCTAGCTGCTAGGGAACAAACTCCCAACAACAATAACAAAAGGA<br>TAAGCGCAATCATGGAATATCCTAATAGAATGATATCCATAACATTCTACACTA |
| >Gm15_2144200 | ATTCACTTCATATGTAACTCCTGGGTTTACAATTCAAAACACTACAAGACTGATCGCATTTTC<br>TTTGCCAACAATGTAAGCTACTTAGTGCCTACCATGAGAACCAAATAAGACACCACTTGTAT<br>CAAAAATTGAAGTTATTAATTATGTAATGCAGACATATCTTCCAAGCGAGACAC[T/C]GGCTC<br>CACTTGTCAAGTACAGAGAAGAAGAATTGAAGAATGTAAGAGGGGATGGAACTGGTGAGC<br>GCAAGGAATGGGATAGGATCTATGATTATGATGTCTACAATGACTTGGGCGATCCAGATAA<br>GGGTGAAAAGTATGCACGCCCCGTTCTTGGAGGTTCTGCCTTACCTTACCCTCG |
| >Gm15_12301810 | TGACATAATATCTAAATTAAAATAATTGGTTTCTATGCTATTGTCTTGATTCTTGTAGTCTTTT<br>GTTCTAATGAGGTCTTACCTACATAATTTTCAGAGGCCTTTTAAATTGTAATACTTATGATAT<br>AGTTTTAGTTGAGTGAGTTGAACCTTGATACATTTTCTGTAGGTCATCAGCG[T/C]CCACTTA<br>GGATGGGTGAGATCTGTTGCAGTTGATCCCAGTAACACATGGTTTTGTACTGGTTCTGCAG<br>ATCGAACTATCAAGGTATTTGATCACAAAATGCATGCCATAGTTGCTTGTTATGAGAAGGCA<br>TGTTTATAAGGAAAATTTGGTGTCATGTTGAATTGTTGATTCTATGGGTT |
| >Gm15_13886434 | TACAATATAATTTTTTTAAACAAGAATTAGTTTTAAATAGTAATAATCATTTTTTTAATAATAAT<br>TTGTGTAATTGGTAGTAACAATTTACTTACATTACTTTAAAAACAACTAATGTGAAACAGAGG<br>GTTACATGCCATCAGGGGCAGACGCCCCCCCCCCCCCCCCCCCCCCCCCC[G/C]CCCAC<br>ATCACAATTCACAAGTCTCTTAATATTTCAGTTAAATAAAAATTGCCGCCCCTCTAATATTTA<br>TGGCTTACTCTTTGTATTATGATTATACACCATTATATCCAATAATTCCCATCCAAATTGATAT<br>TAAAGTTTGTCACATGGCCAAATGGACCAATCCTGTTCGTTACTTCAA |
| >Gm15_48317889 | ATTCCCAGGATTCGCGAGTTTTCGTTGTGGGACAAAAATAAACTATTTTTTTATTTTTATTCC<br>CGGGAAACAAAACAGAACAGAAAATACCCAGAAAAAAGAAAAGAAAATTGAACGAACCTGA<br>AGGTCGAGTCTCTTCTCCCAGCCACTAGGAACCTGCAAATCGAGGTCCAATTCCT[T/G]GGA<br>TTCAATTGAGGAGGACCCACCAAGCAAGTCCCGAGTAATCAGAGCCGTTGATTTCTCACCG<br>TGTGATTCATTCCCCACCGTCCGATGCTGCTCCTCCTTGTAGCCACCACCCATCACCCGAA<br>TCAGAGAGCTAACCTCAGCAGCCATTGCTGTGCGCGTTCTCACAGAGGATTCTAG |
| >Gm15_48317898 | ATTCGCGAGTTTTCGTTGTGGGACAAAAATAAACTATTTTTTTATTTTTATTCCCGGGAAACA<br>AAACAGAACAGAAAATACCCAGAAAAAAGAAAAGAAAATTGAACGAACCTGAAGGTCGAGT<br>CTCTTCTCCCAGCCACTAGGAACCTGCAAATCGAGGTCCAATTCCTGGGATTCAA[A/C]TGA<br>GGAGGACCCACCAAGCAAGTCCCGAGTAATCAGAGCCGTTGATTTCTCACCGTGTGATTCA<br>TTCCCCACCGTCCGATGCTGCTCCTCCTTGTAGCCACCACCCATCACCCGAATCAGAGAGC<br>TAACCTCAGCAGCCATTGCTGTGCGCGTTCTCACAGAGGATTCTAGAGAGAGAGA |
| >Gm15_48317931 | CTATTTTTTTATTTTTATTCCCGGGAAACAAAACAGAACAGAAAATACCCAGAAAAAAGAAAA<br>GAAAATTGAACGAACCTGAAGGTCGAGTCTCTTCTCCCAGCCACTAGGAACCTGCAAATCG<br>AGGTCCAATTCCTGGGATTCAATTGAGGAGGACCCACCAAGCAAGTCCCGAGTAA[G/T]CA<br>GAGCCGTTGATTTCTCACCGTGTGATTCATTCCCCACCGTCCGATGCTGCTCCTCCTTGTA |

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| | GCCACCACCCATCACCCGAATCAGAGAGCTAACCTCAGCAGCCATTGCTGTGCGCGTTCT<br>CACAGAGGATTCTAGAGAGAGAGAGAGAAAGAAGATAGAAAAAATATGGAGAGAGAG |
| >Gm16_1<br>37436 | ATAGGTTCTTAGGAAGCTTGTGGATGATGCTTCCAAGTTTTTGAACGATAAGGTTACCAAGG<br>CTGTTGTTACTGTGCCTGCTTACTTCAATGACTCCCAAAGGACTGCCACCAAGGATGCCGG<br>TCGGATTGCTGGTCTTGAGGTTCTTCGTATTATCAATGAACCAACCGCTGCATCCT[T/C]GG<br>CCTATGGCTTTGAAAAGAAAAACAATGAAACAATCCTTGTTTTTGACCTTGGAGGCGGCACC<br>TTTGATGTCTCTGTGCTCGAGGTTGGTGATGGAGTGTTTGAGGTCCTCTCTACTTCTGGTG<br>ACACCCACTTGGGTGGTGATGACTTTGATAAGGTACCTTTCCCCTTCTTTCTTCT |
| >Gm16_4<br>318195 | TCAGCGATCAAGGAAACCAGACCTCGAAAAATTATACTTCAATCAAGAGTTGAATAAGCCAA<br>AAACAAACTATACATATATCTTTCAAAAACGCATATATTGTTTATATATTACAATGATAAGATA<br>AAGATTAAACAGAAGTCAATTGGTCCCGTTAAATAGCTGAAATGTTGCAGACT[T/C]ACCTCT<br>TATGCTCTCTGATAAAAGGTTGGCTTTCCACGTCTATCCCAACCGATTCTTCACCAGAGCCA<br>GAGCTGTTTACAAACAAACAAATGATAAAGGAGAGCTCGAATCAGGAGGGAAAAAAACAAA<br>AAATAGGCTCCAAAGGTTAAGAAAAAGGGTCTGCAACTGCAATTGCGGCCC |
| >Gm16_1<br>9670636 | GAAAATACTATCTGGGTCTAGGATCAAAATACCAACATATCCCTGTAAAGGGGGAATTTGGA<br>ATACTGGAACTTATTGCAAGAGGCGGCAACAAAAAGTATCAAGCTCTACCAAACAACTTGAA<br>TAACAAAAATAAGTGTAATATGTAAAAACTCATGTAATGAGGAGGAACGAAACGG[G/C]ACC<br>AATCCTTCTTGCCAGCCCATGTTGCGAAGCATCCGATTACCAACATTGTTTTCATCAATTGC<br>TTTGTCTGCCGTAATCACCTCAAAAGTATCAAGGTTGGCATCTCCAACTATGCGTCCTCCAC<br>CAACCCCAGGAGGGAATGGCATGGGATCACCCTTCCTTGATGCAAAATCTCGA |
| >Gm16_3<br>0464934 | TCTCTCCCTCCTCATGAGGAGAAAAAAGAAGCTTTCAACTTTCCTATTATTCATCCAACACC<br>ATCTCAAAATCGAAAGGAACAAGCTTCACCATCATCATCACCCTTTTCACTCCTCATGAGTA<br>CCAACCAAAACACCACCTTCTTCCCCCTCCCACATGGCCAAATAACTACTTCTGA[T/G]TTTG<br>TTAATAGCCAGAACAATCCATCCCAGGCTACAAATCAAGGTAAACTATATATTATTGCCAGG<br>TTGATTATATATCATATTATTCTAATAATTCATATTACCATCGATGTTATTATATGGTCCTCTC<br>AATTATATATATATCATATCATATCATATCAATAATCTGGATCCACATCT |
| >Gm16_3<br>0493681 | GAACCTTCAGTTCATACCAAAGCCAGGATCGAAGTGTCTTACTTCAATCACTCTTCAAAGGA<br>GAGGGATTGTTACCTTATCATCATGATCAGAAAGAAGCTGAGTTAGATTTCCAAACTTCAAA<br>CAATGTTATGATGGGGGGTGGCCAATTTTCCAGTCATTTCAAGGAGCCATTGCAA[A/C]CGT<br>CGCTGACATTGGACCAGGGGCGAAGGAGAGCTACTGAGGTTTACATGCCAGAAAACATGT<br>CAGAGAATATTTATTCGGATGAAGGAAGGTATTTAATCCCCAGACAAGATCCATTGATCCCC<br>AGGCAAGATCCATTGATCCCCACGCAAGATCCATTGATCCCCAGGCAAGATCCTT |
| >Gm16_3<br>0493887 | AGGAGAGCTACTGAGGTTTACATGCCAGAAAACATGTCAGAGAATATTTATTCGGATGAAG<br>GAAGGTATTTAATCCCCAGACAAGATCCATTGATCCCCAGGCAAGATCCATTGATCCCCAC<br>GCAAGATCCATTGATCCCCAGGCAAGATCCTTTGATCCCCAGGCAAGATCCATTGGT[G/T]C<br>CCAGGCAAGATCCTTTGGCTGCAGTAAATATGACTGATTGGGCTGCTAATAATGCTCGCAT<br>AGCAGGGCCTTCCCAATCTCACTTAAATACTGGAGATTTTATTGGTCATCATTGGTTTCCTG<br>CTGATCATCAAGTTCGTGGTGGTGGCTGGAATGGATCTGATGGTGGTGGTCTTTCA |
| >Gm16_3<br>0517229 | GAGAAATCAGCAAAACCATTTAATCAAACCCCCAAAAAGAAAAGGCAAAAACAATAAGTTGC<br>TACCCAAAAAAATATATATGAGAGAAAATCCTCCGAAAAATTCTTTTTTTTTTATGAAATTTTG<br>GTTGCATCGACAACATAAGGGGGGGAATGCTCACAGTGGCTGCCGGAGACGGC[A/G]GCG<br>TGCGGTGGCTGAGAGTGAGAGGGTGAGCTAAAAGGGGTTGGTGAGGTCTGCGAAACAAA<br>GAGAGGAAATTAACGATCGTACGATGCACCACTAATTAGGAAATTTCGTTTAAATCGAATCA<br>AATCAAATTGATTTTACAAATCTACTTTAAAATTAAAATTTTAATTATAATAAAAA |
| >Gm16_3<br>0517232 | AAATCAGCAAAACCATTTAATCAAACCCCCAAAAAGAAAAGGCAAAAACAATAAGTTGCTAC<br>CCAAAAAAATATATATGAGAGAAAATCCTCCGAAAAATTCTTTTTTTTTTATGAAATTTTGGTT<br>GCATCGACAACATAAGGGGGGGAATGCTCACAGTGGCTGCCGGAGACGGCGGC[G/A]TGC<br>GGTGGCTGAGAGTGAGAGGGTGAGCTAAAAGGGGTTGGTGAGGTCTGCGAAACAAAGAG<br>AGGAAATTAACGATCGTACGATGCACCACTAATTAGGAAATTTCGTTTAAATCGAATCAAAT<br>CAAATTGATTTTACAAATCTACTTTAAAATTAAAATTTTAATTATAATAAAAAATT |
| >Gm16_3<br>0539483 | GGTTTGCGGAAACTGCCAGACTGTGTTGTGCCAACCAACAGGCGGACGGGCAAGGTTAAC<br>CGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAATGGTTTGTTAACCAGACTTTTCTTTGT<br>CAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGAAATGGAATCCATTTCCGTTATG[G/A]TAT<br>ATTAATTTTGTTAAATTGTAAGACAATATCTCTCTCAGCCTTCCACAAGACATAGTAGCCAAT<br>GTTGAATTTTTCTTTATTAAAGTGGATGTGGTTTTGTTCGACAACATTTACTAAAATCAATAT<br>GGTTTAGTTTGATGGTTATTTTTACAATAACATGTTTTGTATGCTCTGATG |
| >Gm16_3 | CAACAGGCGGACGGGCAAGGTTAACCGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAA |

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| 0539518 | TGGTTTGTTAACCAGACTTTTCTTTGTCAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGAA<br>ATGGAATCCATTTCCGTTATGGTATATTAATTTTGTTAAATTGTAAGACAATATCT[T/C]TCTC<br>AGCCTTCCACAAGACATAGTAGCCAATGTTGAATTTTTCTTTATTAAAGTGGATGTGGTTTTG<br>TTCGACAACATTTACTAAAATCAATATGGTTTAGTTTGATGGTTATTTTTACAATAACATGTTT<br>TGTATGCTCTGATGACGTGTTAGTGTCAATAATGTACATATGAATTTTG |
| >Gm16_3<br>0539519 | AACAGGCGGACGGGCAAGGTTAACCGAAGGGTGCTCTTTTAGGAAGAAGGGAGATTGAAT<br>GGTTTGTTAACCAGACTTTTCTTTGTCAATGATTGAAAATTTTCGGTTGTTAGGTTTTTGAAA<br>TGGAATCCATTTCCGTTATGGTATATTAATTTTGTTAAATTGTAAGACAATATCTC[C/T]CTCA<br>GCCTTCCACAAGACATAGTAGCCAATGTTGAATTTTTCTTTATTAAAGTGGATGTGGTTTTGT<br>TCGACAACATTTACTAAAATCAATATGGTTTAGTTTGATGGTTATTTTTACAATAACATGTTTT<br>GTATGCTCTGATGACGTGTTAGTGTCAATAATGTACATATGAATTTTGA |
| >Gm16_3<br>0552971 | CTGGATGTGCAAGGCATTGGAGGTGTTTTTAAGAGTTATGGCAGAGGAAAGAAAGCTAAAG<br>AAGGAGGAAAATAATGTTGATTCTTCTTCAAGTTCAGTGCTAGATGTGTCAGAAAATCAAAA<br>TATGTCATCCAAATACTATAAAAGAACAACTACCACACAACACCATAGTATGTCAT[G/A]AAG<br>AACCAATATCCTGGCCCATGCTTCCCAGGAGATAGCTATCCATTTTGGTTATTGACACTACT<br>CTTGCAGTGTGCTTCTTTATGTGGCACAGTAACTTCCATTTTGAAAAAAAATATATATTTGTA<br>ATCACACTGTCACAGTTGGTTTGCTTGAACACTTCCAAACTTAATTTAGGGT |
| >Gm16_3<br>0676914 | TCGGTACTTGGACCTCATCTCCTCCATCAGGGCCCAGTAGTGGGCCCGGTAGCACCGCCC<br>CAGCTGCCTCGTTCGCCGCAGCCGCCGCCGGAGCACCTCCTCCCGCGTCAGCACCCGCG<br>ACTTCGCCAGCGCCGTGTCGCCCTCGCCGCCCTCGATCGCCACCGGCCACGGCGGAGAG<br>G[G/A]TGCAGAACCCCACTCGTCCATCGGTGCCGAGTCGCCAACTCGGAACCGGGTTTCTT<br>GCTGGAACTCGGAAGAGTTCGTTACGGTAATTTTATTTTCTGACTTTGATTCTTCGGCGTTG<br>GGAAACATTTAGAACCGTTGGATACCGTTTAAAAATGATCTGACGATCAGTTTGAAAGTAAT |
| >Gm16_3<br>1154583 | TTTTCTGGTTTGTATAAGTTATTCTAGCTGATTTTCTCACCCTCAATTGAATCTTGATACCAT<br>GTAGAAAAATAATAGCAAGAGAAGAGAGAAAAAACAGAATACAAAGCTTCTATGGTGGAAT<br>GAAAGTGTATTTTCGTTCTGAATTTTCCAACATACATACAGTGACTTGATTTTTT[A/T]ATTTTT<br>TTTGTGAAAATTCAATATCACAAGCAAAAAGTGTGACATTGGCCTAGCATCCCTCAAAACAT<br>GGGTTACCACACTAGTTCACCAACAAGTCGACTTATTACATATCACAAAATATTAAAACAAG<br>ATATCTAATAGATTTTACTTCCAATATATCAAAAAAAAGCTCATCAATTC |
| >Gm16_3<br>1154850 | CCAACAAGTCGACTTATTACATATCACAAAATATTAAAACAAGATATCTAATAGATTTTACTT<br>CCAATATATCAAAAAAAAGCTCATCAATTCTAACAAGGAAATACAAAGGAAAGTGCTTCGAA<br>GTACTAAAGGGTCTTTACTATTTACCAAAGGCTTCCTTTTCTTGAAAGAACCTT[A/G]TATCT<br>GCAGAGGATCAAAGCACAAACAGTTCCATATTATTATTATTATTGTTGCAATATCAACTTTTT<br>TTGCCTCCAATTATCTTTTTTTTTCCATTTCCACTAACCCCCCATGAAGAGGAAATTGACTCA<br>AATAGTGGGGTTGCTCCTGAATGATCCAAGAGCCTTAGCAGCACTTGCT |
| >Gm16_3<br>1189225 | ACTCCTTTCGTGGGTCCCCCGACATGGGCGCTACTACTAATAACGGATTTCGAACCATTCA<br>CACTCTCATAACTCATTCTTCAAACAAACAAAACCTTAAAAACAAAACATACTAAACCTTCTC<br>CTTTTCTTTTCTCTTCCATTTTCCCAACTCACACTTCTCATTTTCTCAGGGAAAT[C/A]GAAAA<br>AGGAAAATGATCGGAAACTTCATCGACGACATTGACTGCGGCAACTTCTTCGACCACATCG<br>ACGACCTCCTCGAATTCCCCGACGACGCCGCCGCCGCTGACACCTCCGCCGCCGCTCCTG<br>TCCCTCCACCGGCGAACTTCTGGTCCGCCGAGTCCGACTCGCTCCCCGCCACCG |
| >Gm16_3<br>1191863 | CAACCCCAATCCAGTGATGCAGCTCATCTCCCCTGCATCCTCCACTGGTGAGAACACGCAG<br>CACAACGCTGCCAACACCTCCAAGGCATCATCGGATTCCGAGAATTTCGCTGAGTCGGTGA<br>TCAAGGCTCCTAAGCAGGCCTCTGGGGAGCACAAGAAGAAAAAGAAGATCAAAGTGA[T/C]<br>GTTCCCATCAGGTCAAGAGCGGAATGCACCATCACAGGCAATTAGGAAATGCTTGCACTGT<br>GAGATAACCAAGACACCACAGTGGAGGGCAGGGCCAATGGGGCCGAAAACACTCTGCAAT<br>GCTTGTGGCGTGCGCTACAAGTCAGGCCGGCTTTTCCCCGAATATCGCCCTGCAGCGAG |
| >Gm16_3<br>1204451 | CCCAATCGAAGCCCCACCCATGACTGAGCATGCAATTGCAATTGCAATGCCCAGACACACT<br>CTGAAGGATACGCAGGGCATGCCCGGCACCCTCGGTGGCTTCCTCTTGCGCTTCGCCCAG<br>TTCTCTTTCGCCCTCGTTTCCCTCTCCGTCATGGCTACCACCTCCGATTTCCCTTCTG[G/A]C<br>ACTGCCTTCCGGTATTCATTAATTCCCCCCTTTCCTTATTTTCTGTTTAATCGTGCTTATTTTT<br>AATTGGGTTTGTGGTAATTGTTGATTTGGGCTTGTTTTTTGTGTTCAAAATCAGCACCCCAG<br>ATTTTATTTTTTTTCAAGTGGGTTTTATCAAGGGAGCAATGAAATGAACTCTT |
| >Gm16_3<br>1225684 | TAACAAAACAGATCATATATCTGCCATTATTCTAAAACAGAAAAGGATAGTTAAAATAAAGAA<br>TACAAGGTTACTCCAGAATAACGATGTAGTAAAAGGAAAGTATAATGTACAAAGGTTTCTAA<br>ACAATACAATATGGTGAAACAAATAGGATACCTGCATAATTTCAGGTGCATCAG[T/G]CCCA<br>CACATTGAGGCTCCGAGAACCTTATCTGTCTCAGCATCAACAACAAGCTTCATAACAGTTTT |

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| | TTCTTGTCGCCTATTTGAAGAATATCAGCAACCATAATCTAGATAAGAAAGTTATGCTGCAA<br>AGAACATAACTAATACTGGGTCCAACTGAGATTGAAGAGCATGTGATGATAA |
| >Gm16_31229414 | ACAAAGTGATTGATTTTGTATTTATCATTGTACCCAACTTACCTATTATAAATAGCATTCATGT<br>TTGTGCCTCCAAGACACAACGTTCAGATATTTCTTCTCTATAGTATCCTTACCAGTGGCAAA<br>CAGTACAGCATCCGCAATCAGCTCTTCACCATGATCTGTAATAACTTTAATGC[C/T]GTCCTC<br>TGTTTTGATCAACTAAAATAATGAAATTTGTTACCATTAGCTAAGCCTCCAACCAAAGCAAAT<br>GAAAAAGTTCTACAAATGTGAGGTTGCAAACCCCTAAACCCAAAGGAAATACCTGTGTCAAA<br>TTGGTCCTTGGATGCAAATTAATTCCCCTGCCTTCAAGATTTCTTGCCA |
| >Gm16_31232875 | CATACAAATCTAACATCTTATTGTTCATAGTCTCTATTTGTTATTTTTCTCCTACCATAATCCT<br>AAACTTGTAATTCTTATTAGCATGTACATATCAAATATTATACTCACAAACAGAAACAATCAT<br>GTAAGTAAGATCATTTTGCAATGATATTTCAAAACAGGCAAATTCACCTGTC[A/G]AGGAATA<br>TTTGGACGTTGAGCCCTGCTGCCAGTTGCAATCAATATGTGCTTTGCTGTGTAGGACAATTT<br>AGTGCCATCCAATTGTGTCACCTCAACTTCATTTGGACCAACTATCTTTCCCTCGCCTTCAA<br>ATAATTTAACCCCCCAATTGGATAACATCCGCTTGTAAAGTCCATTTAA |
| >Gm16_31292709 | GGCACATTGCTCTTTTCCAAGGGCATGCACCAGCCATTCCTTTGGATGACACTAAAGGGGC<br>AGGGGTAGCTGAGGCACCCATTCATGATAGCAAAGAGAACAACAGTAAGGTGCAGAGCAT<br>GAACTTCACTTTTGGATCAAATCCTTCAAATGCAAATGAAGTTCCAAATGCCATGGAT[C/T]T<br>AAAAGGCGATAGCGATGATCCTATCAATTATTTCTCATCATTGAACTTTGAAGCCAACTTTG<br>GTGAGTTTAATGAATTCACCAGACCTCTATTTGATGACCCAGAAGGTTCGTTCTCTTTTGTC<br>ATGCCTGGATCTTTCAAATCTGGAGGAGAATCTAGTTCTGACAATCTTTTATAAC |
| >Gm16_31363451 | TCGGGTCGTTTTCGATATGTCGTCGCCCGCCGCGTATCCTATATCGGCTGCGTAACCAATG<br>AGGAACACGGCGACGGCGACGGCTAAGGCGCCCCCGAGAATAAAGGGGCGCCTGCGACCC<br>AAAGCGGGAGGTACAGTGGTCGCTGTAGTAGCCCACAATGGGCTGTACCACGAGCCCGG[<br>G/A]AATGGGCCCGCAGAGCCAGATGAAGGAGGCCGCCGCGTGGGGGACTCCTAAAAGCT<br>GAACGTAGGGGGTTAGAAGAGAGAGCTGGAGAGCCCACCCGAACTGTATGCCGGCGGCG<br>ATGGACGCCACGGCAAACATTTTTCGGAGTGGGCTCGCTTGGGCCGGGCCGGCCTCCAGA<br>CTAAG |
| >Gm16_31427024 | AGATTTGGATTGGAATGGTTTCCCCAAGCAAATAAAATTAAATTAAAAATAAAAAAGACAAG<br>CCCTCCTCAAAATTATCATAAAGCAGTTAACTCACAAGCCTCCAACCCCATTGATCCTACCC<br>AACAAAGAAAATCCCAATGTCATAATTGGTGTCATTTCATTTCTCTAGTGTGTGG[G/C]ATCT<br>TTTTTCTTAGCATGTGTCATCTTTGTTGTTCCCATTTCCATTCACCAAGAGCCCTTTGCTTTC<br>TTCATCTCTCTCATTTTCCTTATTCCTAAGCCCATTGCAACTACCCATTTCAATCCTAGTGAG<br>CTTCTCAGCCTTCAAAGCCTCAGCTTCCCAATCTGTCCTCACCAACACAA |
| >Gm16_31427304 | ATTGCAACTACCCATTTCAATCCTAGTGAGCTTCTCAGCCTTCAAAGCCTCAGCTTCCCAAT<br>CTGTCCTCACCAACACAACATAGAGGATTGACACAGCACATGCCACCTGGGCCGACAGAA<br>GCCCAAACCAAAGCCCACTGAACCCCACCTTGAACCAAAAGGCCAGGCCCACGGCCA[G/T]<br>TGGGGTGCCCACAAAGTAGAATGAGCCTAGGTTTATGTGGGCCCCAATACCAGGTCGGGC<br>CGTGCCACGAAGGATCCCACAGCCCGTGGTTTGTGGACAGTTCCCAAGCTCACACAGGCC<br>CATAATCGGCATGACTGATGCAACCAAGGCTTTTACGGGCTCGTCGTTGGTGAAAAGCCC |
| >Gm16_31459969 | GAATCAACATGGTGTTGTATTATGATTGATTGATAACCTTGTCCCTAAGTATGTGGTGAGAG<br>GCCTGATCCCGAGGATTTTGTATTTAGAAAAATATCTGTTGAGAGAGGTGAACCCTTAAATG<br>AATCTTAGTACTTGAGGGATTAGCCCTGGCTCCGAACGGGAAGATACCTGAGTGC[G/A]AC<br>CAAAAAAAGAAAAAGGAAGAGTAAAAGTGTGGGAAGAACAAAAAGAGGAGAAAAATAGATT<br>GAGGGCATCTTGGTTTGTTAGAACTTAACTGCAAGAATTATGGAGTAATTGATGTTGTTTTG<br>CATGTACTGGAAGAAAAAGAAGGTAGTGATTAGATTTAATTTTTAATAGACATAT |
| >Gm16_31461554 | TGCAGAAAATGAAGGAAGATGTCATGCTGTTGCAACCTGCTTAACCAGGAAATTATCTCTTC<br>CACCCTCTACATTTCACTCTTTTCTTGCACCATCATCATCCTCCAAAGTGACCCCACAACCT<br>ACTGGTTCAAGTAACAACTTGATACCTGGTACACCGCGGCTTGTACGAAGCCGTG[A/T]CGT<br>GACAAGGGACAGAGTAAGAAACTGGAATTTTGATGAAATTGCAATGGAGTCCTAGTCTAAA<br>CTATAAGATAGAATAAGACTAGGGAATTTTCTTGTGGGATAGTTTATAGCATGTTATTGCTAT<br>TTTGCCCCTTTGAATTTTGTTATGGGTGCAATTTATCTCTTTCTCTAGTTTTC |
| >Gm16_31475163 | TATAAGTGTTGTTTTCAAATATTAAGGAGTTGTGGGGTGCGAGCGTGATTTTCTCGTTATAA<br>AAATAAGAAGGAAGAGTGATTCAAATCTGAAGCTGAACCCTAACTAGCTGAGCAGACGGAG<br>GAGAACTCGACTGAAGCTGCCTCTGCGACGCCGTTTCGATTCAGCCTCAGACATTT[G/A]TG<br>TAAGTTCATCGTTTCACACTTTACACAAATACCCTATTCTTCGCATACTTCGTCGCTGCAACC<br>CCGAACAACGATAACCTAATCAATTTGGCTTCGCCCCCTCTTTTTCTCTTCACAAACAATAA<br>CAATTCACGTGTGATTGATTTCTCCAGTGTTTTACGAGTTTCAAAGATGCTCG |

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| >Gm16_31476359 | CATTTATCAAAAGCCCAGGTTAGCAATGCAAAACAGTGAAAGTGTCTGCTTGCTGCTGTAG<br>GTTGCAGTCATGGTGCAAGAAAATGGCAAGAGGAAGAAACCAAACATTCTGGTGACTGGCA<br>CACCGGGGACAGGAAAGACAACTGTGTGCACTGCTCTAGCTGAAGCCACCCAGCTCT[C/T]<br>TCACATCAATGTCGGAGAATTAGTCAAAGAAAAGAACTTGCATGATGGATGGGATGATGAG<br>CTTGATTGTTACCTTCTTAATGAAGACTTGGTAAGCTATCAATTTATATAATTTGGATCATTC<br>CTATATGCTTGTGTTTGAGATTTAGCTCCTCTAAAGTAAAATGAGGAGATGTGTAA |
| >Gm16_31479958 | TAGGACTTGTAGTTGGGGACACCATGAGACTATTAAACCCTTCTCTGATGTGTCAGCAAACT<br>CCTTTGGAAGCTTTCCCTTATCACAATCTCTAATCACCCACATGAAATAACTTCCACTATCTC<br>CCAAACCCCAAGCCAGTTCCTCAGTTTGCTCCTCATTAAGCCCTGCCATGCTCC[T/C]GAAA<br>GAGACATACACAACTGACCCTTTTGGTTTTTCATCAAGCCATTTGATGCAAGCTTCTGAGTT<br>TGGATTATACATGTTAACACCATAGTCCTTGTCATCTTGGAGTCTTTTGTCCAAGTAGATAG<br>ATGGCAGGCATGGTCCTATTGGCTTTAATGGCCAAATCTTCACCAGCCAATC |
| >Gm16_31481163 | ATAGCCATCTGAGATGCTCTCAACTTCAATGGAAGTGAAGTTTTTGTTTCTCATGTTCTTCCA<br>ATTGGACACAACAGTTACAAGTGTTACCTTCACTCCTCTCTGCACCAAACGCTTGGAGAACT<br>GAAGCATAGGATTGATGTGTCCTTGGGCTGGATAAGGTAGGACAAGACAGTGAG[G/T]TGC<br>ATGGTTTTTCCTTTGCTCTTTCATTTCTGACTCCAACGTTTGTTTACTCCTTCCCCACACTGC<br>ATATGTGTTCATTGCTTTCTGTTACATGTGTATAAATAGAAGAGAAATGCAATTTTTACACCA<br>AAATCAACAACTAAGAGAAAGAAGGAGAAAAAAAATGTGATGTAATAAGTG |
| >Gm16_31506333 | TAAGTAACGATAACAGGGGCCACAAGAGAGACGTTAACTAGCAGCTTCATTTGTCGCTACA<br>AAATATTTGAGGTCACCAATTGAGGACACTAGAACCATAACAAATTTCAAATGCGCATACAA<br>AATTTTCTTCCACTCTTCAAAACCACGCGAATTCTAATCTGAACTTCAACACTCCG[T/G]GGA<br>ACAAAAATGCTACTCCTTCCCGTGCTTTCTCTCTCTCCCTCCTTCCCCTCTCTCGCTTCGAA<br>CCGTTATCTCCAATTTCGACCTCGTCGGAGCCGCCGCGTCGTCCGATGCGCCGCCCCGGA<br>GTCCGGTGGCGATGAGTTCACGGCGAAGTCGGGGTACCTGTTCGAGCTGAGCGCC |
| >Gm16_31516052 | TCGTAAATTGCAATATGGGGATCTTTTTTGGATTTTACTTGTTTTATTATACCTGACTTTTAGT<br>CAATCGTTCAGCAATAGGTATATTAAACTTGGAACGCTACATGGACAATCATTTTACTGTTTT<br>GTTTATCCTAATAAAAAAAATTGTACTTTTCATCAATGACATGTAGGAAAGC[C/A]GACAGGC<br>GAGTCCTGACAAGAATCAAATACTGTACATGGAGGAGTTGTCGTTAGTTTTAAATCAAGTTG<br>AATCCATTCAAGACATTCTTCCTATAATTTCTGTCATTCTTGAGGTAAATCTAAGCATTAGCA<br>TTTTATTTAAGAAATGTGGCTGTTTACCCATTTTTTCATTAACCTGTA |
| >Gm16_31516059 | TTGCAATATGGGGATCTTTTTTGGATTTTACTTGTTTTATTATACCTGACTTTTAGTCAATCGT<br>TCAGCAATAGGTATATTAAACTTGGAACGCTACATGGACAATCATTTTACTGTTTTGTTTATC<br>CTAATAAAAAAAATTGTACTTTTCATCAATGACATGTAGGAAAGCAGACAGG[T/A]GAGTCCT<br>GACAAGAATCAAATACTGTACATGGAGGAGTTGTCGTTAGTTTTAAATCAAGTTGAATCCAT<br>TCAAGACATTCTTCCTATAATTTCTGTCATTCTTGAGGTAAATCTAAGCATTAGCATTTTATTT<br>AAGAAATGTGGCTGTTTACCCATTTTTTCATTAACCTGTATAAGTCA |
| >Gm16_31520234 | TTGATCATCAATGGGTTTCAATTGAACGGAAAGATCTCACTTCTCAGTTGCTGTTCATGCAT<br>GTATATTTTTGGATAAAATTCAAAATTTGAAGATGTGGATCTAGTGTCAGAAAATTAATGAAT<br>TGTGTGCTGTTTTCAACCGGTGTCAATAACATGGACCAAATGGGAATGTTAGCC[C/G]TAGA<br>TTGAAGTCCATGTTTTGTAACAAAAGCTTGCAGGGAAGTATCATTTAGCCTAACCTTGTAAA<br>AGGGGCAAACTAAATTATGGATCTGATGAATTGGTGAGCAAGTGTAAGGAAAAAATATATG<br>CAGTGGGAACAAAAATTGCGTACGGGACAAAAGGCACCAAGCATCATTGTTTA |
| >Gm16_31520242 | CAATGGGTTTCAATTGAACGGAAAGATCTCACTTCTCAGTTGCTGTTCATGCATGTATATTTT<br>TGGATAAAATTCAAAATTTGAAGATGTGGATCTAGTGTCAGAAAATTAATGAATTGTGTGCT<br>GTTTTCAACCGGTGTCAATAACATGGACCAAATGGGAATGTTAGCCATAGATTG[G/A]AGTC<br>CATGTTTTGTAACAAAAGCTTGCAGGGAAGTATCATTTAGCCTAACCTTGTAAAAGGGGCAA<br>ACTAAATTATGGATCTGATGAATTGGTGAGCAAGTGTAAGGAAAAAATATATGCAGTGGGAA<br>CAAAAATTGCGTACGGGACAAAAGGCACCAAGCATCATTGTTTACTTCTCTA |
| >Gm16_31525931 | ATTATTGATCACATAGAGGAACTATTCAATGACTGTGTTCTTTCGGAAAATGAATGGAATCA<br>TGTGGTGTGTACTACATCATGGGTACCCCAACCAATCAAACAAATTGGAATCCATGTAATCA<br>AACAAGGAAGCAACTTGGAGGATATCCAATTTACCAATCCACTATTGTCCAAAGA[G/T]GAC<br>CCAGATTTTCGCATACAACATGATGATTCAAGGAAACGAAAAAGACAAGAGTGACTGTCTTC<br>TCCCGGAGATGAAGTATCTTCCCGTTGATTGATAATAAAATTTTGTGGTTTTAGGACACCTT<br>GTTTTGATTATATATTGTGCAATGTTATGTATTCCCAATATAATTACAGGAGG |
| >Gm16_31675129 | ATTAAAACGTGGCACAGCAAGATTTGAGTCCAGATTGTTAACCATTGTAGCCACTTTGTTAG<br>CATCACCCATCCAATTGACAATAATTTTGTTATCAACTAGTACATTCACATCTTTTTCAGTGT<br>TGATAAGAAAGTTTAGAATCACTAGGTATTGAGTAATGCTGTTTGTATCATATG[C/T]AAGGT |

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| | GACATTCCTCAAATGTCAATATATTCCTGAAGAACACTTCTGAATTGTCAGTTATATTCAAGA<br>TTGGCATTGTCAACACACCCTCATCGGAATAGGTCATGTCAAGTAAGCATTCATTTTCATTT<br>GGACTGACCTTGAATTTAAGACCTGCCTCCCGTAGTTGGCTTGCACTGTA |
| >Gm16_3<br>1708589 | AATTGACAAATATCTTTTATATTTAATTTTTCACCTTAATAAGAAGAAAAGGACATAGGAAGG<br>AATCAACACAATGCATGTTATGCCACAATTGCTAGAAAACGATACAAAGAAATCTGGCAGTA<br>GAAAAAACAAAAACTCCCTGTCAACCCCTTAAATCCCTTACATACCAATTACAT[G/A]TATCA<br>CTCCAAAATTCCTACACCATGCCTTCACACAAAACTCCCTCGTGCCTATATATGAAACAAAG<br>CCATTGATGCAAAAAATATGAAAAGAAGAAAAGGCAAAGGGAAAATATCTTACATACAATGC<br>ACACCTCAATCACATAATGTACATATACAGGATATAGCCAATCAAACAAAC |
| >Gm16_3<br>1708884 | CTTACATACAATGCACACCTCAATCACATAATGTACATATACAGGATATAGCCAATCAAACA<br>AACTCTAAATCTTATTGCTAAAAGGAAAAATCATATTACAAAAAATTCAAGAAAAAAAAATGA<br>ATGAATCTAATTCTAGTAGTGGCAATGTGAGTGTTAGAAGTTGCAGCAGCTATC[G/A]TTGAT<br>GCTCCTGAAATTCTGCAAGTTAATCTCCTTTACAACTCATGATGTATCCCTGCACCAGAAAG<br>TAGAATTAGATAATATATTTATTACATCAGGAGCATGATTTCAGAGATGTACAAATATTCAAA<br>TTGATAATATTGAGACCTAGACAAGTAATAGTTGCTGCAATCCGGGAGAT |
| >Gm16_3<br>1709663 | ATGCATGCTGACAAGTTTATACACGATATAAGAAGCAATTCACCTGTCCAGTTAAGCAGCTA<br>AATTCCAATTACTTAAATTTGTCATGACTTGTTCATTTTCAATCTCTGCATCAGTGAAAGTTA<br>GGGCTCGCTGTAGCTTCCTAGGAGAAAATGTCTCAACTTCAACCATATATTTGG[G/C]AGTC<br>ACAGGTCTGTGATCAGACAGTTTGAGCTCTGCCCTTCTGTAACTCAATAATCTCATTCCCTT<br>GCCATATGAAAGAATACGATCACACCTTCAAGGTGATTACAAACAAGCAGAAAATTCATCAA<br>GGGTAAGACATGTATCAAATACCATACCACTAGTTCATAAACCATGAAATGG |
| >Gm16_3<br>1790078 | CTTTCCATACTTACCCTGCATCCCTCTCCCTCTTCTCCTTTTCCTCCATAATTATAAAAATCG<br>CACCCAAACACCCCCCTTCCTCTGCCACCCAACCAAATCCTCGATCTCGCCGAACAACCCC<br>ACCCTTTCAAAATCCGATTTTCCGATGCCGAAGAAGCGAAAGTCTATCGCCACCA[A/G]CCT<br>CGACGAGGTGGATCGAACCCTCTACGCGTCGTTTTGCACCGCCGCCAACTCCCTCTCGCA<br>GCTCTACACGCACTCCATGAACCACCAGAAGCTCTCCTTCAACGCCGGGGAACGACACGC<br>CCTCGTAATATAATAAACCTGCCCCTCCTTTTTTATTTTCTTTCTTTGTTTATTCTC |
| >Gm16_3<br>1791873 | AATGTTGTAAATGTAGTGTCAAATGTTCCATTTGTGATGCTTAATTCTTTAAAATTATTGATAT<br>TTCTTTGTTTTTGGTTGTAAGTATGTGAAAGTTCATTCCTCTTGCAGAATGAGCTGGATTATT<br>GTGGAGAAGAACCATCTATGTCACCTAGAGCACCACTGCAACACCAGTCACA[T/A]GCAGC<br>ATTGCATGTCCCTAGTTTTCCAGTCACTTCAGCATCTTCTGGTCAAACAATAGCTGCACAAG<br>GACTCCGCTCGGACCACTGTGAAAATCAATCAAAGAATTCTGTGTTTTCAAATGCTTTGTCA<br>AGTCCAGTACGTCGAAGCCTTCAACATTATCAAATTGGTGAGGGAGGATGC |
| >Gm16_3<br>1792317 | GTGAGCTCCAATGATTCTGCCATGGATATGCATGCAGACTAGTTCTGTCTATTGGTTTATTA<br>ATTGGGAATTCTTAACTCACCAGCCTTTGCAACAGCTACAAAAGAAGCTAACAACCTTCGGA<br>ATTCCGTATCTGGGTTTGCTCATTGGATCCTGCAAGAAACGACAGGAGGATGGAA[G/A]TAA<br>TTCTGTTAACCTTTTACTATGCTTACGTCAACCGAGTGATTGGTTTGGGGTCTTAAGTGGTT<br>TTTGTAAAGTTTTCTATTCATTAGCTTTAAAGCATTTTATTTTGTACCTTAAATTGTTTTACCC<br>CTTCGCCCCTTCACCCAAAAGACTAATTTTTAAAATGTAGGGGTTAATTCT |
| >Gm16_3<br>1799191 | TCGTTTACTGGACTAGTTGACACTTGACAGCCATTAGTTTTATATATGATGTTGCAAAACATT<br>TTATTATTCGTGGATGAGCTGGATGTAATGGAAATTTCTAACCTTGTTACCTAGCCATATATT<br>TATGTTGTTCCTTTTCTTATTAAATTGCAGCGAAGTGGATGATGAGTCAGTTG[A/G]TGAATT<br>TGACAATGGGAATCTCAAAACTTGTTCCTGTGCTATTATGTAAATTGGCATTCCAAAGGATG<br>ACACAGATCCATTTATGAGGCGCCAAGTTGTTGATTGCTAACATATTCCATCACTCAGCTTG<br>AGGAAAAGGAGCAGATATTTTTCAGTCTAGTGGAGATTTATACACCATTT |
| >Gm16_3<br>1827884 | GAAACAACAATCCCCAAAATAGAACACACCCATATCCTTAGCAATTAAACAACACCACACAA<br>GAAGAACTACACATAACTTACAAACTTTTGCTCCATTCAAAACTGATCAACCAATTGCACCA<br>CCTCTTCCACCACAGACGTCAACAAAGACTTCCTAGCATTCACCACATTGCACTT[G/A]CCA<br>CGAATTTCACCTTGATTTCCAGTGAGCACATCCAATTGACTCAACTTTATAGTAGCATCCAC<br>AAACTTCTCAAAGAACAACGTTTGGTTCAACGCAAATGCATTGACCAACCCCTTAGTCCTCT<br>TATCATTGAGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGGTTCATTAGG |
| >Gm16_3<br>1827991 | ATCAACCAATTGCACCACCTCTTCCACCACAGACGTCAACAAAGACTTCCTAGCATTCACCA<br>CATTGCACTTGCCACGAATTTCACCTTGATTTCCAGTGAGCACATCCAATTGACTCAACTTT<br>ATAGTAGCATCCACAAACTTCTCAAAGAACAACGTTTGGTTCAACGCAAATGCAT[C/G]GAC<br>CAACCCCTTAGTCCTCTTATCATTGAGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGG<br>TTCATTAGGTCAAGGTAGTATTTGTTGTCGAACACAGTCGGGGTTCTGATGTCCAAGTTGAC<br>GGTGTTGCCGGAGTTTGCGTCGGGGCAAGTGGATTGTAGTTGCTTGGCTAGGGT |

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| >Gm16_31828137 | CAAAGAACAACGTTTGGTTCAACGCAAATGCATTGACCAACCCCTTAGTCCTCTTATCATTG<br>AGCAAGTCCTGGTCAGAGGTGAACACCCCTTGGCGGTTCATTAGGTCAAGGTAGTATTTGT<br>TGTCGAACACAGTCGGGGGTTCTGATGTCCAAGTTGACGGTGTTGCCGGAGTTTGCG[C/G]C<br>GGGGCAAGTGGATTGTAGTTGCTTGGCTAGGGTTTTGTCCATGTTGGGGTCGAGAGGGGA<br>GAGCCTGTTGAAGAATGTGCCGCAATGGGCACGACCAAAGGTGTGTGCGCCGGATAAGGC<br>GACAACGTCGGTGACATCAAAGTTTTTGGCGGCGAAAGCGTCAAGGGTCACGCCGGTGG |
| >Gm16_31829738 | ATATCACAAAGAAAAGCTTCAAAACTATAGTTAGTAAGAGCAGAGGGTTTTGAGAACCAAAA<br>TAGTAGTGCAAGTAAAGGTAAGAGGGATGAAGAGATTACAAGGAAAACTGAATCACGTGCT<br>GCCAAAACAGTGATATCTGCGCAAGAAACGATCCTTCCACACTCCTTATGGATAAT[C/G]GC<br>TCTGATGTCATCAATGGTTTGCAAGGCCTCAGTTCTGATGCCTCCGTTGGCTGGTTGGTCT<br>CTTTCACTTGGACTCCCATCTAGCAGCAATGATCCATCACATCCCTATACAAATGCAAATTA<br>AGTTAGAGGTAATATCTTTTTTCTATATATATATATGCATGCATATATATTAACC |
| >Gm16_31840753 | GTTGGGGGACTCGGCATTGGGACACGTAGCTATCAAATTGTTGTTGAAGTTTGGGTCGATT<br>GGTGGGTCCGTTTCGATGGTTCTGTTCACTAGGGAGGGACAGTGGGCACGACCGTAGGTG<br>TGTGCGCCGGAGAGAGCGACCACATCGGTGGCATCGAAACCTCTATTTCCGAATCCTC[A/G<br>]CAGAAGATCGTCGGTTCGGAAGAATGGTGCCGGTAGGTTGTCCGGCGCGGTGGCGTTTG<br>GTCCTAGGCCGTCTTTTCTTCCCAGTGGCACGTCAAAATCAGGGCCTCCTAACTGTTCAAA<br>TTACAAAGAAGTTACCAAAAGGAACAAACGAGAGATCAAGCATTATGTTTAAATGTGTTT |
| >Gm16_31840819 | GTCCGTTTCGATGGTTCTGTTCACTAGGGAGGGACAGTGGGCACGACCGTAGGTGTGTGC<br>GCCGGAGAGAGCGACCACATCGGTGGCATCGAAACCTCTATTTCCGAATCCTCTCAGAAG<br>ATCGTCGGTTCGGAAGAATGGTGCCGGTAGGTTGTCCGGCGCGGTGGCGTTTGGTCCTA[<br>G/A]GCCGTCTTTTCTTCCCAGTGGCACGTCAAAATCAGGGCCTCCTAACTGTTCAAATTACA<br>AAGAAGTTACCAAAAGGAACAAACGAGAGATCAAGCATTATGTTTAAATGTGTTTTTAATCT<br>CATTATAATGTTATAATTTGAGTGAAAATTATCTCTAATTTATATATTATAAATGATTT |
| >Gm16_31842815 | GAGCTACTCCACTGTCCTTCTCGAAGACATCCTCAAGATGCTTCCTTATAATCCTCTCAAGC<br>TTGGGACATGTCAACAAATAGTAATTCCATGATAGTCCAGGGACTAGTTTCCCAGAGGAAA<br>CATGGATTTGAGAAGCCAATACAAGGGAAGAAATCAAGAGCAAAGAGTGAAACAAA[G/T]GA<br>CTAACCCTAGCCATGTTTGATTAATTTGCTATGAGTGTGACTTGAGATAACCAAAACTTAGA<br>AGAGTTATTTATAGATTCAATATTGAGGTAACGTTCTTCGGTTGCTTCCCACTTCCCACCCA<br>CTAGTCTTCTACGTATAATATTTAAAACGTGGCGCAAGCGTTTTTTGAGATTTG |
| >Gm16_31885123 | TGTCTTGGCCGATTTTCTCTCTCACTCTGTACACAGAGACAACCATGCCGTGGCTCCAGGT<br>CTTCTTATTTTCTTAACATTATGTTATTCCAGATGCCTCAAAAAATGGTGTTGCACAAGAGAC<br>AATTCAAAATACTATCCGCAGAGCTAGCAAGGTGATGACGGAGCAAGAGGCTCGA[A/C]GG<br>ATTCTTGGTGTTACAGAGGAAACTCCCTGGGAGGAGATTATCAAGGTTAGTATATCATCTTT<br>GTTGTGGGTATATTACCCATTTGTTTTCAATTTAGCACTTCTAAAGTGGGGAATGCATTTTTG<br>AGGATAAAGCACACTGTTATAGCCTTCAATTGGAAAATCAATAGCTAACATAT |
| >Gm17_4966500 | CAGCAACACCAAGAAACATAAACAGAAGAATAGTGTCAAATCCACCTCCAACGCCTACAGC<br>TACACTGGGACCTGGTGCAAAGAATGAAAATGGAGACCATCCCCAGCCACCATAACCATAG<br>CCATAGCCACCAACAAGCGGAGGTGCCACTCGAGGATTGATATAGATGTTGGTCCTG[T/C]T<br>AATTGTCATAAAATTCAGAAACAAGATTCCCAAGTTAATTAAATCAGTTGATATATATGTTAT<br>ATGTTCATATGATCCATCCAATTATAAAAGATATTTCATTTCTTTTGATATGCATGATCTCTG<br>GGGATACTCCAGGGTACGAATATCACATATCAGCCATAGTTAAATAGAATAAA |
| >Gm17_10335675 | GCGGCGACGGGGGCGTTGGTGTTGGAGGCATTTCCTCGGCGCGAGAACGTGAGGGTGGT<br>GAAATTCGGGACTCGACGTGGAAGTGAGATTGTTGGGGTGTATATTGCGCACCCCATGGC<br>CAAATCCACCATCCTTTACTCTCATGGGAATGCGGCTGATATCGGACACATGCTTGAGCT[T/<br>C]TATGTGGATCTAAGTACCCACTTGCGTGTTAATCTTTTTGGGTATTTCAAGTTTTCTCCTTT<br>CTTTCATTTTTCATTTCTCATCTTATGTACATACATACATGTATACATGGTACATGCATCACAA<br>TTGATCTGATTTTGCTGAATTGCGTTTGATGAAAAGTCTAGTGAAGCAGGGATG |
| >Gm17_11391400 | TAGCATGCAGCTCTGTTACTATAAGCCTAAAAGAAAAGGGATATCTAAACAGATCAGGATTT<br>GCATTCACTATTGAACACGAGGATTATCACTGCTATTCAACAGGTATTATTACCTTAGCATCT<br>TTTGGGTTCCTTTTTATAGCTTCTGTATAATGCTTCGTAGCCTCAGGATACTTC[G/C]GCTGC<br>TTGAATAATTCATTTCCTGCATTTTCAAAGTTTCCAGTATTTAGAAAGTTAGTTAATATTTTAA<br>GCAGAGATAAGAAACTTATAGTCATCAAGATACATAGTTAAAGAGTGTTTCTTTTACAGGAG<br>AAAAGATGCTTGCACGAGATGGAGAACCCAAGATTGTAGACAAAAAGAT |
| >Gm18_21030712 | TGGATATAGCTCTCAGGGTTCTGGATCCACACTTATTATGCCATTTCTTGATAACCAGCTGA<br>AGTCTCCTAGCCCACTCCTGTTACCTGCGCAGGTGAGGTTCTGAAATGGGTGTTTTGCTTG<br>AAATATTTGATTCTTCAAGTTTATTGACTGACACCTACATTAAAATTATGATTTCT[T/C]TCAG |

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| | GATGCTGTTACTCCATTGTCTGAAGCAGAAGCAGTTGATCTGGTCAAAACTGTTTTTGCATC<br>TGCAACTGAGAGAGATATATACACTGTAAGTTTGTGCTAAATACATAATTACCAATTGACTG<br>TAGGATGAACTTGTAACTTACTGTGGATGCTTTTACAGGGAGATAAGGTTGA |
| >Gm18_41433527 | AGGGTGAAATGAGCTTTATTTTTTCCTCGAGTTTTCTAACAGAAAGTCAACCCGGTCCCTTA<br>ATTGACGAGAATTCGTGAACAAAAGCAGTAAAATTTCAACGGATCAAAGGATATGAGTCATT<br>ATCGCAGATCGATTCTTCGAGAACGAAACGAGCTCGGAGACGAGGGGAAACCCTG[T/C]AA<br>AATTGAAATCGGGGAAATAACAATTACAATTAACGAATTGAAGCAAAAATCAGAGAGAAGAG<br>CAAAACAGAAAAGAGAACGAATGGAAAAGTACCTGATCGAGAGAAAGCAGAGAGCAAGATT<br>GGTGCGCAAAGTATGAAAACGTGGAAAGGGGCGAAACGACAAAATAAGGGCGTTT |
| >Gm18_54168590 | CCGCCTCGTAGCTGTCTTCCTCAACTTCTGCATTTCTATGGCCTCAAACCTCTTCCTCTCCC<br>TAATCCTAGCATTCCTCCGCACACGCCAAGCTGACAGCCAAGGCATCAAAATCTCATACCA<br>AAAGAGAGTAACCAACAAGACAAAGACACAAGCAAGACGAGGCGAAGTAATCTCGA[G/C]T<br>CGAAAAGCGGGCGGCAGAAGCTGAGAGAGCGCCCAGAGACCAATTAACGGAATAACCAAC<br>CAAGGCAGCATTGTAGCAACCCGGCGAGACCACTTCTGAATCACACACAGTATACACATTA<br>TCCTCTAACCCTAACCCTCTTTCCAGTCCCAAATATATCCTATCTTTTTTCCCTCCCA |
| >Gm18_59757318 | AAACTCACAGATTTTGGCATTAGCGTACTGGGACCGCGTTTTATGTCAAAACCAAAACCAAT<br>TAAAGTAGATTCTGTTGTGGGTAATGTTTTATTTTATGAGGTTACTACTACAATGATTTTTTG<br>TCAGATAAATTAAGCTAATACTTTTACTTATAGGTACTTTTGGCTACCTGGCTA[T/G]GGAGC<br>ATCTCACGGACCTCACCGTCACAGATAAAACTGATGTTTACTCATTTGGTATGGTTCTACTT<br>GAAGTTGTGTGTGGAAGGAAATATGTAACAACAGAACTTGAGAAGCCTGTTGAGGAGAAAA<br>TTGATCCTAATATCAAAGGAAAGATTGCACCAGAGTGTTGGCAAGTCTTCAT |
| >Gm18_59757325 | CAGATTTTGGCATTAGCGTACTGGGACCGCGTTTTATGTCAAAACCAAAACCAATTAAAGTA<br>GATTCTGTTGTGGGTAATGTTTTATTTTATGAGGTTACTACTACAATGATTTTTTGTCAGATA<br>AATTAAGCTAATACTTTTACTTATAGGTACTTTTGGCTACCTGGCTATGGAGCA[A/C]CTCAC<br>GGACCTCACCGTCACAGATAAAACTGATGTTTACTCATTTGGTATGGTTCTACTTGAAGTTG<br>TGTGTGGAAGGAAATATGTAACAACAGAACTTGAGAAGCCTGTTGAGGAGAAAATTGATCC<br>TAATATCAAAGGAAAGATTGCACCAGAGTGTTGGCAAGTCTTCATAGATATC |
| >Gm19_6362210 | CCTTCTTCTCTTCCTCCCAACCATCAGATACCCAACTTGGCTGCTTCATATTCTCCACCTCA<br>GCTATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATA<br>TATATAAATCAATTGAACCAAAACCAATCTCACAATAAAAATCACAATCCT[T/C]ACCTTCAAC<br>TTTTCCCTCAGTAAATCAGCCTCCTGCAATTTCTCCTTTATTTTATTCTCACAATCTGATATTG<br>CATTTTCGAACGCAGCATTCTCTTCCTTCAACGTCACCTCTCTAAGTTGGGCCTGCACCACA<br>ATTGCATTTAAGTGTCCCAAGTTCCAATTGTATGAATTGAATCCC |
| >Gm19_41528666 | ATCGTCATGTACCCCGTTTGGAAAAGATGTCTCACCTCACCATACTTGCAAGTCAAAATCAG<br>AATCAAGGGAACAAAACGGAATCGCGAGAAACTCTATCATGTGATTTTTATTAACCGCTATT<br>CACTCCGACAACAGATAAAATAAAAGCTTCAGCCTTCTGCACTTTTTTTTTTTTT[T/C]CCTTC<br>TTTAATCAAAGCCTAAACTAACCTTGGATACAAGTCACAGCGTCAAAATATTAAAATAAAGAA<br>ACGCCGTTAGCCAGAGGCTTACGGCGGAAGCTTGCACGGACTAGGTGGAAGACTTGTCTT<br>CCCAGTAGCAACAAGACGTTGCACGAAGCTCTCGATTCTGTTACCGTTAGTC |
| >Gm19_49218118 | AACCCCTCCAACCACCATAGCTGCCGTCCTTGGGCACAATGCAAAAGTTGTGGAGCACATC<br>AGAGTGGATTGCTTCCATTGTCTAGTTTTTGATGAATAAGTCTCAATTGAGACAGTGTTGCG<br>TTCCTTAAGTTTGCATTCACATCTTGCACGGATCACCTTGTAGCATATGTCACTAT[G/C]AAG<br>ATATTCCTCAACAATCAATGCCATGCACAGAACTTTATAGAACTGCTGAGGTTCTGGGAGTT<br>CATACTTTTGCTTGGTCACAGTATTGTACACATAATATGTCTTTGGATGGAAACCAGAAAGA<br>ATAATTCCTTTGGAACTATCAATGAAGTACCCAAGATGTTTGAGGATTCCAGA |
| >Gm20_37990145 | TGATGTAGGTGTTCCCTACCCCACCGGATTCCACCCCCGCTCCAAATCCGACGTCACGCG<br>CTGGCAGAGCTTCGTCCGCGAGCGTCAGCGCCACGCGCTCTTCTGCTTCGCCGGCGCGC<br>CTCGCCGCGCCTTCCGCGACGACTTCCGCGCGATTCTGCTGAGTCAGTGCCGCGACTCGG<br>[T/C]GAGTCGTGCCGCGCCGTGAACTGCACCGGGACGCGGTGCTCCAACGGCACGTCGG<br>CGATTCTGGAAACTTTTCTGGACTCGGATTTCTGCTTGCAGCCGAGGGGGGACAGCTTCAC<br>GCGCCGGTCCATTTTCGACTGCATGGTGGCCGGTTCGATTCCGGTTTTTTTCTGGCGGCGA<br>AC |
| >Gm20_44848539 | AATGCCTCACCACAGACACAGTTACAACACTGTTTCAATAAGTGACTGGTCTCCGAAACAAA<br>GGACCCATCTTCGAAATTTGAACTCTGCCTTCTCAATTAAGAATTTAAACTTGTCAAATTAAG<br>GGGGGGAAGTCAAGAACTCGATGGTGGTTGCGGAAGCGAATATAATATAATCAA[T/C]TGG<br>GGGTATAATTTGTTCTGATAGGCTGAGTCCCCACAACGGAAAGCAACGAACTTTCCTCGTC<br>AAGAAACAAATCCTCGGTAACCCTAAACGCAGCGTGCAAGCCAACGAGAACCACCGAGAC |

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| | GATTAACGAGAGCAGGACGTTGAGGCCGACGTGAGTGGAGACGAGCGAAACGACAG |

**Supplemental Table S5**. SNPs identified by Method 2 on the seed protein NIL pair This table contains 387 SNPs identified using Method 2 on the fourteen Illumina libraries of Williams82/G. soja seed-protein NIL experimental data. The file contains a unique SNP identifier that includes the genomic location. The sequence surrounding each SNP based on the soybean Glyma1.01 genome assembly is also provided.

| SNP | [W82/Gsoja] |
|---|---|
| >Gm01_244437 | TGTCGTGTTGCTTCTCGTTGTTATTTTTTTTTTGGGCCAAAGCTGCTAACCTTCTCAATAGAC CTCTTCCTCCTCTCCCCGGTCTGGAGATCTTGGAGGAAACTATTGCCAGGGTTGTTGATGC ACTGCAAATTTGGTTGAATCTAGCCTTGTCTGTTGCACATGACATAGCAATTGAG[C/T]AGAA TTTTCTGCTTTGCCTCCAGGTTGTTGGTGTATTGTGGGTAATATCTTACATCGATAGTTTGTT CAACTTTTTGACTTTGATCTATATCGGTGTTCTTCTTCGCTTGTCTCTCCTTGTGTTGTATGA CAAGAATCAGAACAATTTCAATTTTCATGGCTAGAGTAAGTTTCTCCATG |
| >Gm01_526411 | TACATACACTACTGCTAAATAGAAAGAAATGCAGACCTGATTGATTCCCCGATCTTGAATAC TGTCAACTATCTTTTTGGTGTCATGTCCACCTCGTGATGTTCCGAGGACAGTTCCCCCACG CTTATGTATATCATTCACACTTTTAGGGGTTAAAGTGATTGTATTGCGAGCATAGA[G/T]ACC CCTATATCCTCCCTTCACATCAAAACATTTTCATCAGTTGATGAGACCAATACAAAACTAAG TGTGCTAGCAAAATGTTAGTTATTGTAGATTTACACTTCTACACACAAGGGAGAACAAAAGA TGGTGAAAATTAACTCCAGGATAAATAACATATATAAGTGACACCTCATAAGT |
| >Gm01_2450043 | ACTCTGGAACAGGTTCGCAAGTTGCTTAAGGATTTCTGATGATGACGAAGATGTATGCTAC TTTCATTTTCAATAAGATGCGTTTTGTGTTTGTCTTGTGCTCTAATACTAGTGATGTAGTTCT GGAATGGTAATTTTGTTATTCTATTAATCAATGAGAAGCACACATTATTCTCCGA[T/C]TTAAA CTTAGATAATCTTATTTTTTCATTTGATCAAAAGGCTAATTTTATTTATCATATATGACTCTCA TTAGTCTAATAAATTTTTTTAAGCACAATAAAAATTAAATATAAATTTTTTTATTAAATAAATCG TGTTCATTTATGAAAATGTATTAGAGTCTTTACTGCACCAAATTTT |
| >Gm01_2524255 | TTGCAAGCGATAGAAATTGATAAGGCCATAATTGATCTCTTAGTAGTAGAGAAGGTGAGGT TGCTGTTCCCACATAGAGCATATTGTCCTTGTTGAATTGATAATTGGTGTTTAAGGTCATCT TAGTGAACTGTTCTGACTTTTGTGCTATGCAATTTTCATTTTGCAGTGGAGAGTTC[G/A]GAA GTGTGTTGAATTGATAAGAGATTTGTCCTTGATCAATGTTGCTGCTAGTTTAGGCAGCAAGG TACCATATGTGCCCCAAAGTCCAATTGGGGTGCTGGATGCTGGGTGCTTAAGTTATAAGAG TGATGAATTAACTGTTGGATCATGTCCAAATTCTTCACATAATATTTCAAATCC |
| >Gm01_7695499 | CAAAACAAGATATTGAAAAATAGAAGAATGCAGTATAAACTGTCAAATGGGGAACCCCTTTT TTCAAAGTATTCCATTGGTCATTTGTTGCTATGTTGAATGCTGGTGAGAACATAGAGAAGCA AAGTCCAGCAAAGAATGTTAGAGCCAATCCAATCAAAGTGCTCTTCCCAAAAACC[C/T]GCA GCAAAATTCAAGTGTGAGATATAATCATTTCAGATTAAGGCCAAGGATTTGCCTAACAAGGT TGGTTAATTGAATGCATGTTTAAGTCATCATCCAATTACACATTAAATATATCATCATAAAGA GAAATTCTAGCCACACTCTCTTCTTTGATACTTTCTTTCTTATACTCTTTGA |
| >Gm01_8945342 | TTTTATTCAAGTTATAATAAGTAGATTGAAGATTGTAATTGAAGGTTATAATAAATAATTTTTT TAATATATATATATATATATATATATATGCTTTTCTTGCTCCCCAATTAGTGTTTCCTGGTTCA TATTCTTGACTTTTCTTAATGATTACGATGTTGGTGGTTGAGTTGTCATTG[A/G]AGAGTTTAT AAACCTTGTCTCGTCAGAATCCAGTGAAATTTGTAATAGAGAGGATGTTGAGAGATAGTATA CGTTGAAATTTTTGGGTTTTAGGCCTTGAATTAATGATAGGTTTCTTATTCTTAGACATTTCA TATAATATTCTTAGACATTTCAACTAAATTTGTGTTGGTGTGTAGC |
| >Gm01_8945369 | GAAGATTGTAATTGAAGGTTATAATAAATAATTTTTTTAATATATATATATATATATATATATAT GCTTTTCTTGCTCCCCAATTAGTGTTTCCTGGTTCATATTCTTGACTTTTCTTAATGATTACG ATGTTGGTGGTTGAGTTGTCATTGTAGAGTTTATAAACCTTGTCTCGTCAG[G/C]ATCCAGT GAAATTTGTAATAGAGAGGATGTTGAGAGATAGTATACGTTGAAATTTTTGGGTTTTAGGCC TTGAATTAATGATAGGTTTCTTATTCTTAGACATTTCATATAATATTCTTAGACATTTCAACTA AATTTGTGTTGGTGTGTAGCATACCATGCTTTAAGGTTTTTAATTTG |
| >Gm01_13799455 | TTCAAAACAATCTTGTTCGAAACAATGGCAGATAGATCCTGTTCGAGATGATACTTTGGTAG ATAGAAGATAGGATATTGAGGGAAATAGGGTTGTAAAAAAATGACAATTTTGGAACGAAGA TTCAAATCGTCTCGGCATAGAGAGAGAATTTATGGCATCGAATTGAAACTAGATCT[G/T]TG GCAACAGTGCAAGAAAATGAAAACAAAAACTGTCACAAATCGTGCAAGAAAGAATTTAGTTT AAATATTTGCAAGTGAGAAAGAAAAAGTTGAGAGAGGATCCGATTTTCAAAATGATGTAATC |

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|---|---|
| | TAGGATTACAGAAATTTTCTTACCTGGTTGGTTAGATTTCCCGTGAACTGAAAG |
| >Gm01_25562169 | ATGGATGGTGGGAAGGCATTGTTGTTCAAAAGGACTCGGAATCTAATTGTCATGTTTATTTC<br>CCAGGTATGAATGTCTGCTCTTTCTATGTTAATTAGCTTAGGTTGGTAACTGTTCTTTTGGTA<br>CTTAGATTATTAGTTCGTTTTTTTATTTTTGATTAATTCCTATGGTAATGTCTT[T/A]GCAGGG<br>GAAAAAGTGGTGTCGGTATTTGGTCCTGGTAACTTGAGAGAGTCTCAAGATTGGGTGGGG<br>AATGAGTGGGTATTTGTGAGGGAAAGACCTGATCTTGTGGCTTCTGTTTTATCTAGCTTGAA<br>AACAAAACAAAACTCATGCAAATCCAATTCCAATAACATCCAATCAACTGGA |
| >Gm01_27083133 | TTGCTGCTGTGGCTGCAGTTGCTGCAACTGCGGAAGCTGCTGCTGTTGCTGTAGTTGTGG<br>GAGTTGTTGAAGTTGAGGCAGCTGCTGCTGTTGCTGGAGTTGCGGAAGCTGCTGCTGCTG<br>GAGCTGTTGCTGCTGTTGTAGCTGAGGAAGTTGCTGCTGCTGTTGCAGCTGAGGAAGCT[T/<br>G]CTGCTGCTGCTGCAGCTGAGGAAGTTGTTGTTGCTGCATGTGAGGTAGCTGCTGCTGTT<br>GTTGCAACTGCGGAAGATGTTGCTGTTGGTTTTGCATCTGCTGGTGCTGTTGCTGCTGCTG<br>ACTCGACAATTGCGGCTTAAATACGACCATATCCTGCTTGCATTCAAGGCTTCGAGTAAA |
| >Gm01_48157361 | TGGCGGTAAAAAAATACAAAATCACGATGAAATCAGTGATAATGACTACTCCAAACGTGGTT<br>TTACGAGTGAGGGACCCACCTGTAGTTTGTATTCACCGAAGCCGACAACACTCTTCAGATC<br>ACTCTCATTCTCTGACACCGGGAAGCTCAAAACGACGCCGTGTGTGTTGCTGTTGC[C/G]G<br>GCTTCTTCTCTCTCTCTTCTTCTTCTTCTTCTTCTCACACATTGTTCCTTTCCTTCCATCA<br>ATCAAAGGTGGAGCAGCTGAAGACGCTGGTGGGGAGGGAGCTGACAATGGGCTCTCACC<br>ATGGCCACTCGAAGGAGTTTCTGGACCTCATCAAGTCCATCGGCGAGGCCCGATCC |
| >Gm01_48157362 | GGCGGTAAAAAAATACAAAATCACGATGAAATCAGTGATAATGACTACTCCAAACGTGGTTT<br>TACGAGTGAGGGACCCACCTGTAGTTTGTATTCACCGAAGCCGACAACACTCTTCAGATCA<br>CTCTCATTCTCTGACACCGGGAAGCTCAAAACGACGCCGTGTGTGTTGCTGTTGCA[A/G]G<br>CTTCTTCTCTCTCTCTTCTTCTTCTTCTTCTTCTCACACATTGTTCCTTTCCTTCCATCAA<br>TCAAAGGTGGAGCAGCTGAAGACGCTGGTGGGGAGGGAGCTGACAATGGGCTCTCACCA<br>TGGCCACTCGAAGGAGTTTCTGGACCTCATCAAGTCCATCGGCGAGGCCCGATCCA |
| >Gm01_51613297 | TGAGAAGTGACGCGTGTCCTATGACAGCTGTATCCCAAATCCCAAGCCAACCGCTTCCCTG<br>GAAGAAGCGGTACCGATTGCCCATAACGCTCGCTGACAAGTCCAAAACCTAACTTGCCAAA<br>CCGGTGTCCTCACACCCTCTCCCTCTCAGATATAAGCGAGCAAACCATTCCAATGCT[A/G]C<br>ACACCACTACGCCACAGGAGGAGCTTCCTGTTTCCATTTCCTCTCACAAAAATCACTTATTA<br>TGAACACACGAAAAGACATGGACCGGATCAAAGGCCCATGGAGCCCGGAGGAGGACGAG<br>GCTCTGCAGAAGCTGGTGGAGAAACACGGGCCCAGGAACTGGTCCCTCATCAGCAAGT |
| >Gm02_858015 | TCCTCACTGAGTTTTGGTGTAGCCTGAAACAATATACATCAATTGCTGTCATCAGTTTCATC<br>AGCTAGGATTTTAGAATCGACAATAGACCATAATAAAAAACTTTAGTTTTTCCTCCTTTTGAC<br>TGGAGTGTGTGTTCAGGGGAGAGGGGATTAAAGATAAGATATAGCTTAAACTAG[C/T]ACCC<br>AAGTAACCAGACTCTGTTGTCCACGTGGTAGTGTATGATCAACGGGTTTCCTTCCAGTCAG<br>AAGTTCCAGAAGGACAACGCCAAAACTGTATACATCACTCTTAGCATTCAATTGTCCAGTCA<br>TTGCATATCTGCATCCACAAGATTAGACAGATAGTAAATCAGCAGTCTGAGGC |
| >Gm02_1882327 | CCATATGCTGACATAGCCTAGAAAGTAAAACCAAACAGATTACATAGTTCTCCATTCTTAAT<br>TTAAAAATAAAATGAAAGGAAATACCTTCCCAAGTTCTTCGTCCACTGCTTTTGCAATTGTG<br>TTCTTCTGCTCAAAAACAGCATCAAGTTCCATCTTTGGAACAGTAGCTCTGATAA[G/T]TAAA<br>ATAACAATAGGAGTAAATTAGTTTCAACCTGAAGATAAGATGCACACATAAAATTAACCTAA<br>TTTCCTTCTTCTAAGTAGATTCACAACACAAGCTCTAATTGAAATATTAACCATCAAAGACAT<br>AGGATTGTATCTGTGCTTTGGTATTGGTGAGTTTGTAGTAAGCATCTGATG |
| >Gm02_4060077 | CCTTAATAGAAAAAAAAACTTAGGTATTTGATTTTATTTTATTTCTGGTGGTGATAAAGAAAA<br>GTTGCTAAGCTTGTTTATTTTATTGTGAATTTTTGCATTTGCAGGACTTTCAGCTTGGGGAG<br>ACTGGTAGAAGTTTGCCTCATTGTCATCACATTTTTCACCTACCTTGCATTGAT[T/C]AGTGG<br>CTGATCAAGCATGGTTCTTGCCCATTATGCAGAAGGGATCTGTAATTTTGTATCTGCAAAGT<br>ATACAAACCGTAAAAATAGCTAGGTTAACTCTTTCATTTTTTATATATAAGGGAATCTACTTT<br>TAGGAATGTACACTATGGATAAATGTAGTCGGAACTAGGAACCAACCATC |
| >Gm02_12048612 | TGAAGCCAGGAAGCAGTGATTGCAACTCATGGAGCACTTCAGGTAACCTTCTATTGTAAAA<br>GCTGATAGCTTTGTTTATTTTCTCATCACAATTTCCTCTTGGTCTTTCTCGGATAGCTTTTGA<br>TGGAAAGCAACCTGCTGGGGGAATGTTGTTCACGAAAAATTTTCTTGCTCCTAGA[G/A]CAT<br>ATATTCTCTGCCAGAAAACAACAAATCAAATAAATCCCGTTAGTGATGTTATTGCTGATGAA<br>TCTTCTTGGTTGACAAGTGCAAACATGAATGCTAGCGAGTGTGAATCATTGAAAGAGAATTC<br>ATGATGAAGCACGGCATACATAGGTCCCATTCTTGTTATAACTAGTGTGATAA |
| >Gm02_1485198 | GTTGGAGAAAGTGGGACGCTTGCTGAAAATATTGAATTGAGCCTTGGATTCGCCGCCGAAT<br>GGCCACCAAGAGCTTTTCTTGGTGGGGGCCAACGCACGCACCCGTTCTCTGCTTATTTTGA |

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| 3 | AAATACTTCCCTCGTTCTGTTGATTAAAAAGCCTTTCTAACTTTCCTTTTGGGGTCT[C/T]TAA<br>TTAATTTCCCAAAATAAAAAGAAATCAAATTGACAAAGCCAAATTAATTAGTAGCATTTAATG<br>TTAATGATGCATGATAGCAAGAAATTAAGGGTCTATATACTTGGAGCGCAGCTTGCAGCAC<br>ATTCCAGCTGAATGCTGAGAGGACCGATTCTGGGTCTCGTCCTCCAGGCCCGA |
| >Gm02_<br>3734972<br>6 | TTGACCGGATTACCTCTCCTCCTCATGCTAACTATTCATACTCTGTTCAAGCTAGTGTCAGT<br>GCTGGAATTGATATGGTAACTTTTATCATCAATTTTAAGGAGTAAAAGAAACTTATATAAAAT<br>GTTTTTTCAGCCTGAGAATTTTGTTATTTCATTAATTAACAGATTATGGTTCCC[A/G]ACAACT<br>ACACCGAGTTCATTGATGAACTAACCCATCAAGTAAAGAACAACATTATCTCAATGAGCAG<br>GATTGATGATGCCGTGGCAAGAATCTTAAGAGTAAAATTTGTCATGGGCTTATTTGAAAATC<br>CATATGCTGATCCAAGCCTGGTGAACCAACTGGGTAGCAAGGTATATTTTC |
| >Gm02_<br>4224890<br>3 | CAATCCCAGATGTCAATTTCTTATCCCTGCAAACATAATTACATAGCAACCATCAAGCAGAT<br>TTCAGACACAACATAATAAGCTTTCTATGTGGTATGCATTAGAAATGTTATAAATTTTATGAC<br>ACTAAAATAATTACTCACTCACAGTCACTGCCCTAACATTTTTTTTCTTCTTCT[G/C]ACCAGT<br>TACCCTTAAACTGGGAAACCGGTCCTCCCGGTTTACGTTGGTCCCACCACTGAAGACCGAA<br>GCCGAACCCACCGGTGGCGAACTCCATCGGCGACGCCCACCTCACTGCGGTGTATGAAAC<br>CAACCCGGCGCTATCAAACAACCTCCGGTAATTCAAATTGGAATCCCCGATAC |
| >Gm02_<br>4752229<br>3 | TTCTCATAACAAAGTAAAATGAGTGAGTTTGATATTATCTGTCCAAAATATGAATTTTCTACA<br>GTAACAGCACTTTCATCTTCAACTTGTGCATTTTCAGATTGGATGTTAGCTTGCATTCCTGA<br>ATCACTCTTCTGAGGTGAGGTGGATGTCAGTTTTTCAGCAGATAGGTCAGAAGT[G/T]CTAC<br>CATCTGAAATAACACAGCAACATAAGTAATAAAATTGTTTACAAATTATAATATTTAATTTTCT<br>CATCCAAAATACTTGCCTATAATGTGCATTGAAATTACATTTGATTTTACGCTGGGGCTCAT<br>TGTTCTACTGCAAGCCATATTCCCTGTCATGGTATCTATTGCAACAAAGT |
| >Gm02_<br>4775192<br>2 | AAAATGGAATCAAATTCGGAAGAGGAACTGAATAGCAGAGGGGAGTATATATAAGTGTACA<br>ACAATATTACTGTCTAACTGAACATTCTTTTAGGCAATTGGCATATTTCCTTGAGAATATTCA<br>CGGAGAAATATATCCAATGGAAAGAAAGATATCAGAGGAGAAAATGCAGGGAATT[T/A]CAG<br>CATGAGAGTTAGTAATAGAACGAAGATTTTGCAGCTTCTCATGCAGTGCTGCTCTCTTTTGC<br>TCTTTGGAAACCATTTTGTGTGCTCTCTCTTTCTCTCTCTCCTCTTATGATCCTTCTTCTGGC<br>TTTCTTTCTCTCTGGTGCTTTTCTTTTGCTATCAACTCTGCAGAGTTCTGTG |
| >Gm02_<br>4789057<br>3 | ATACAAAAGCTCATTCCAAGTATCTTGAAGGCCAGGTAAGCACCAATGCACACAATCAGCA<br>TAACTAACAGGGTTAGCTAATTGCTCTGGAGTCAATGGACTCCATTGCTTCTTGTAGATTGA<br>AGTGTGTGCATCTCTACGATAATTGGATAGTTGTGTGATGTTCAAAAATGTAATGG[T/G]CCA<br>CTTTAGATTTGCTAAACACTCCTCCAATTACTTCCATTATACTCTTCCTACAATCAGAGCCCC<br>AATATGTGGGATCATCAATTAGAGTGGTCTCATTGTAACAATTCCCTCCCGGTTCACCTCCC<br>CAGTCTATGCTCCTGTCATATATTATTTATGAAACATTAGGTTATTCACACA |
| >Gm03_<br>1380611 | TTTTGCTTCACATTATTTAGGGTCTCCAATCACTTGCAACCATTTGCCGCCGGTAGCATATG<br>CTGATATAAGTTACTTTTTTGCTTAGACATATCCAAGACTTTGTTCAATTCCCTTTTGTCTGA<br>GGTGTGTGCATTCTTGTTTAACTCCTCTTTGTTCCTCAGACATCCCAGAAGGGA[C/T]CAAA<br>AAAAAAAAAAAGAAAACCATAATCACAAGCAATAAAGGGGAGAAAACAAACATGTCATTCAC<br>AGGAACTCTTGATAAATGCACAGCATGTGATAAGACTGTCTATGTGGTTGACTTGTTAACTC<br>TTGAAGGAATTACTTACCATAAAAACTGCTTCAAATGCAGCCACTGCAAGGG |
| >Gm03_<br>1998320 | ACACCCTACTACACAACGAAAATAAGTAAATTTCCGGTGATAGACATTTGTGTCAAACAAAA<br>TAACACGAATGCCATGGGGGGTGCCAATAGCAACCCACAATAGGGGCTAGAGAGAGAGAG<br>GAGGCCCAAAAGGGAAGAAAGAAAGATAGTAATATGATTTCATTTGAGAGTATTTGA[G/T]T<br>TGCGGCACAAACCATTCACTGTGTCGGAAAAAGAAGAAGAGAAAAAAGATGAGCGACGGA<br>GGAAAACGACAAGGTGGAAGAGCGTTGCCGCCGCCGCCAAGAGGCCCTCCGCCTCCTCC<br>CCCCTCTCGCCCTCGCCTCGAACCCGTCGATCGCGAAAAGGTACTCACTCTTCCTTCTTC |
| >Gm03_<br>3105779 | ATCCATCAGGCCACATTCGATCCCGCCAGACACCTATTAATAAACAATAATATTAGAGCTGC<br>CACATGTATCTATCAAAGTTATCTATTTAAGAGATATTATAAAGAAGTATACCGGCATTGATC<br>ATAGGTTCAATTGTAAAGGTCTGTCCGGCCTTCATCACACCAACTGCTTTATTT[T/C]CTGAC<br>AGTGATTAAGGTGTATACATTCCATATGTTCTCGTTCTACTTTCTAGCAACCTTTGTTCTTTG<br>TTAGGGGGTACGGGTAGAAAAGCTAGAGGTGCACGTTGGGAAAGAAAGTTTGGTTTAAGA<br>AAAAATGGCACATATGAATGAGGAAGCTGGCTGCTTCTAGCAAGTAATGGTA |
| >Gm03_<br>4586070 | TATAAAAAAATATATTAATAATATTGAAAAATAAGTATTCATTATTTAAAAAATTTAATATTATT<br>AAATGAATAGAATAAATAACAAACATCATTTTAATATATGGATAAGAATTTTAAGAATACGTA<br>TTTAAAAATGAAATTATAACATATATATATATATATATATATATATATATA[G/A]AGAGAGAGA<br>GAGAGAGAGAGAGAGAGAGAGATAACGAAAAAGAGGTTGAAAAGATCGCGTATTATTACTT<br>ATGCAAAAATTCACCCATTAGTCGGTTGGTAATAATTATCCTTTTTGTTGCACCTAATAAGA |

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|---|---|
| | GTCAAAATAAGGTTGGCCTTCAATGTTAACCTCTCGTTGCAAGTTTAT |
| >Gm03_35892373 | TGGCTCATGGAGTGTTAAGGACAACAAGGCCTTTGAAAAGGCTTTAGCTGTTTATGACAAG GACACTCCTGACCGTTGGTACAATGTTGCTCATGCTGTTGGTGGCAAAACTCCAGAGGAAG TGAAAAGGCACTACGAACTCCTTGTTCAGGATGTTAAGCATATTGAGTCTGGACGTG[C/T]G CCATTCCCAAATTACAAGAAAACTACTTCAGGGTCAACTGATCAGGAGGAAAAAAGGTATC ATTCCCTTTATACGTTTGTGTTTGTTTGATCCGTATAAGAATAGAAGGTAGATATTAAGAAAA GTTTATAACAACGCACCTTACTTAACCATCTGAGTTAGATCTTTAATCTTATACA |
| >Gm03_36399874 | CATCTAACTTCTTCAAAGGCTGAAGTGCATAAATTGATTTAAACTTATAGAAGCTTTATTCAT TTTACTTTTTTATTCTTCTTCTCTTGAAAGAAGTTTATCCAAACACGACCTAAATTATACTCCT AAATAGAATGCTTTTGGATGTTCATTTCTGTTAAGAATAATTGATAGATGAG[A/G]TACCCTC CACTCAAGAAAAAGCGGCCAAGAGTAGCGATGACTAGCCGGGACCGAAAGCCAGGGTGG ACGAAATACACAGTCTGAAGCCTGTCCTTGAAATCAGCAGGAAGTTCTTCATAGATCCACC TCAAGATGGTGATGCCAGGGGAATTATCCTCCTTCTGAACAGTGCTGTGCATG |
| >Gm03_40572502 | TTCTTCTGGTCCTTAAGACCAGCATCCTTGGGGTTGGGAACGTTTCTGGCACTTGTGGCCA CAGCCAGAGCAAGAACCAACACCAAAACACACATCTTAGCCATGTCTCTCCCACACACTAG GAATGTACAACGAGTTATTGCACTCTCCTTTTGGTTACTCTACTATGAGTGTTGTGC[G/C]GA AGTGTTAAGAGGAGCATGTTTTTTATAGGGGGGGGAAATAAGCTAACCGGTGAGGGGACA GTTGAGGATGGTAAATGAAACATTAATGTGACTGCAGAGAGCCTTGCTGTCATGTCCCAAA TACAATTTAAGACCAATTTCGTACACTGCAGGCGCATACGTTTATTATCGGTGTGTA |
| >Gm03_42062831 | ACTGTCAGCAGGACAAGGGGGGTGTCAATCACATTGATGGACACCTAACAGAAAATAAGATG CAAATGAAACAAAAAGATCTAACCTCAAAAGCTCCACTGAAGCTCCATTTCAGCTGATTTGT CTTGAGTCGGGGGATCACAACAGAGAGAACTGGCATGGTTGGCCTATATTTTGCTA[G/T]TA ATCTGAAAAGTGCATGCGATGCTTTTAGAAAAGCCTTACAGACACAAGTGGAAATGCAGGG AAGAAAGATTGATTTGGACAACAATTGATGCATAATATTCATTTTCCAAGATACTAAATATGA ACATGTTCATATCAAATTATTCGTTGAGACACTACCTTGCAGCCCTTCCAGAAG |
| >Gm03_43865797 | TGGTGTGGCAGTGGAGTTCTTAATCCGATGGTGTGTGTTGATAGGGACTAGGGAGAAGGA ATGGCCACGTGCTGTTAGGGACTGCTTCCACATCTCCCGCGAGGCCAAACCACGTGTCAC TCTCCACCAGAGAATTCCACGCCCTCTCCTTTAAAACCATAATGCACCCCTTGCCTTTC[T/A] CCACCACACTCGCTTCTCTTGCTTCCACTTCCATTCCACCATGCCTTCTAATGATCTCAAAC ATCGGGTCACCACCACTACAGCAACCACCAACGACGTCAATAGGACCAGCAGAGGCAAAC GAATGCTGATGGCCAAACGCGGCCTTAAGTCACTCGCCATAGCCGTTGTCCTCCCTCT |
| >Gm03_46224057 | TCAGATCCATAAGAGAAAAAATAGATACACAACCCAAGGAGAGAATGCAACTTGAAAAGCA GCAAATGGCTCGTATAACTTCATATTCAAGGCTCGAAGACCATGCTCTCTGCTTCTCGCTTC ACGGATTCAAAGAGCACAGATGATAAATAACGCTCTCCAAAGCTTGGGAAGACCGC[T/G]TA CTCAGGTTTTCAGTGGGCTTATCAGTGATGGAATATATATAGTAAATATAATAAGAACAAGT GCATCTAACTATAACAACCAAAAAAATCCACATAACTAATGCTAGAAGTTTCTGCCAATGAT CAGCACTTAAAGTGCAACGATTCTGAAAATGTTTGAGCACATTGATACTGATAT |
| >Gm03_47163194 | CCAAGAGACAAATCCGAACATTCATTCTCACAGTCGATGATAATAAAAAACAGTATAGCTAA ATTAGAGACCATGAGAAGCTTATAAAAGCAAAAACAAGACCTTTTTAGCATTCAGGAAATAA CTCTGTTCTCATACTGCCATTAGCCTAAAACAGGTAATTTGAAAAATAATTAGAG[C/G]CTTA CTTGCACTCTGTTACTATAAGGTTAATGGCTTTGTTCCTTTGTTTTTCCTTTCCCAACAGCAC TGCTGGTGATGCTTCCAGAACAACTCTAGGCAAAATCTAAATGCCATGAAAAAAATGGATG GTTTGATGAGGTCAGTAGTTACACAAAGAAAAGCATAACAATAAACCTAAGA |
| >Gm04_739976 | AACCCAGAACCTGCTGTGCCGGTAGCGGTGGTAGCGACACCAGTGAGTTGGACGGGATTA CCGCGCTCGTCAGTTAAGATAACCGGATTACCGTATTGATCGGTGAGTGGGACAGGGTTG CCATGCTGGTCTCGTAGTTGTGCTTCAGCCATTTCCTTCAACTCTTGAATAGTATCTGC[C/T] GCTGAGTGCTGAGTACTTAGTTATATATATAGCTCAGTCTGGGTAATTAGTTCCTTCCTCTC AATGGCGGTGGAGACATGCATGTAATTCGGCGGCAACACGTGACAGGAGAACACACAGAC ACCTCACACCCGTTTGCCACCTAACAGGACACGTGTCTCTTTGTTTGTAGTGTCACAC |
| >Gm04_4586273 | GTATTTGGAAGTATGAAAAAAATGGCTCTGGTGATGCTGCTATCGGCTCAAGTAGGACTTC AAATGTTCTGGCTAGTGATTACAATGGTGGACAGGGGAGAGCACACTTTGTTGATCGGTTA CAGAACGTTGGTTCAGCTCGGGCAGCTCCTGTTTGGCTTGAAACCAGTGATGCAGTT[G/T] GTAAATACTTATGTTTATATGCTTCAATTGTGGGATGTATTCTCTGTCCATTATTTTCTTTAAC AATTTTGCATGGCAGCAAATATGTTTTCAGAGCTGCGGGAAGAGGCTCGCGATCATGCATG CTTACGTAATGCATATTTTGAGCAGGTGTGTCTTCAATTCATGCTTTGATGAAGT |
| >Gm04_4586274 | TATTTGGAAGTATGAAAAAAATGGCTCTGGTGATGCTGCTATCGGCTCAAGTAGGACTTCA AATGTTCTGGCTAGTGATTACAATGGTGGACAGGGGAGAGCACACTTTGTTGATCGGTTAC |

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| | AGAACGTTGGTTCAGCTCGGGCAGCTCCTGTTTGGCTTGAAACCAGTGATGCAGTTG[T/C]T<br>AAATACTTATGTTTATATGCTTCAATTGTGGGATGTATTCTCTGTCCATTATTTTCTTTAACAA<br>TTTTGCATGGCAGCAAATATGTTTTCAGAGCTGCGGGAAGAGGCTCGCGATCATGCATGCT<br>TACGTAATGCATATTTTGAGCAGGTGTGTCTTCAATTCATGCTTTGATGAAGTC |
| >Gm04_<br>5096967 | TAAACATAAAGTCTATTATATATATCAATTTTGTGTTTTTGCATGTTGATTTTCAATCTCCTTT<br>GCTATATTTTACGTTATTTGTAATAGTTAGTTTTGGGTGTTGGTAGTTTACTAGTTATAACTT<br>TTGTGTATTCTTTTTGTTGATATATCCCTTAAACATAATTCTTTCTATACAA[G/A]ACATGGGT<br>ATGGAAGGTGGCAAGCTATTGTTGATGATAAGGATCTGAAGATTCAGGAGGTCATATGTCA<br>GGAGTTGAATCTTCCCTTTATAAACTTACCAGTTCCAGGACACGTTAGTTCTCAGGCACAAA<br>ATGGTGCAAATTTGACAAATGCAGAAGTACCCAACAGTCAATCCAAGGA |
| >Gm04_<br>5581132 | TGTTTCTTGTTCTACTGATGTCGATGTTCTCAACAATGTAGGGAATTAATTTTGTTAACTTTT<br>TTTTAATGTTATACCCATTTGCATTTCTAATTTGTGTTTGATGGATTTCACAGGTTCAGTCTA<br>GGTTTGAGGTGGATATAAAGCAGCTTCCTGAGCAGATTGATACCTCTACCTAT[C/T]GTACG<br>TATTTTTTCATCCATTAATACCTCTACCTATAGTTCATATAGAGTTTAATTAGTTGACTGAAAA<br>TTATAATTTAGAATTTTAATTTTGTTTCCAATTCTTCCAAAATTGAAATTGAATTAGAACTATA<br>AATTCTATGTTTGTATTGTGTGCTTAGGACATATAATTGAATTTTAA |
| >Gm04_<br>6375455 | GCTTCTGTGTCATGTTTTTTGTTCATACCAACTTGTGGCATTTCCTGCATCATATAGGTAAGT<br>GGCTGGGAAATAGGCAAATACGATGCAACTGGGCAACTAAGGGTGCTGGTGGCAGTTCCA<br>ATGAAGAGAAGATTAATGACAGTCAAAATGCTGTTGTGCTTACAAATGGATCTTCA[A/G]GT<br>ACCATGTACCTTTCTAGATAGCTAAGAGCCTGAGCCTACATTTGTTAAACCATGAAAATATA<br>GATGAAGGTTCTAGTTTAAATTTGTTTTCTTCTCCAGATCTGGGATATTTTATTGGCTGATAT<br>TTGGCATTCATTATGTTGAATGATATCATACTGATTCAAAATGTATAATGGAG |
| >Gm04_<br>7079456 | CTAGACATATCATATTCAAAATGCTAATTAAATATACAAGGCTTATAAGGAATGGAAGCTAG<br>GATGTTCATATAAAGTTAATGGATAGTTTAATTTTCATGTTAAATTCTTTATCGATCTGCCTC<br>TCTGTTATATTTTGATAGATATGCATGTGCTGAAATATAATTGTTTTGCGGCTG[G/C]GTAGA<br>TAATGGAGAAAGCTGACTCCAGCAGGAGAGCGTCCAAAAATCAGCCAAATGCTCTTCCTG<br>GCCTTGTCATCCTTGCAAAGGATGTAGGTAGCCTGGCAGTCAATGAAAAGCAAGTGTTCAG<br>TCCAATACTTAAGAGATGGCATCCTTTGGCAGCAGGTCTTGCTGTGGCCACCCT |
| >Gm04_<br>7891337 | AGATTTATATCATATTGGAGTTCATCACGGGTGGTGAATTGTTTGATAAAATTGTGAGTAGC<br>TCAAGATGGAACCTTTTTTTTTTTTTGTAGATTTTACTCTGGCATTTATTAATCACCATTCAAG<br>ATATTGGAAATGTTTGATGGTGAATAATATGATTGTGCAGATACACCATGGCC[G/T]TCTTAG<br>TGAAACTGACTCTAGAAGATATTTCCAGCAGCTTATTGACGGTGTAGATTATTGCCACAGTA<br>AGGGAGTTTATCACAGAGATTTAAAGGTTTGCATTGCGTGAGATCTGAAAAGTTGTCTATTG<br>TCCTTATGGTGATTTCTTCTAATTTTCTTTTTTGCCTTGTGCAGCCTGAA |
| >Gm04_<br>8124418 | TCCAAGTCCCATTTATTGGGTCTATAATCGGCCAGTAGCAAAAGAAACATATTCCGGCAAG<br>GCTTTTGCTATTTTCACTCCCCTTGTTACATGTGGTGCATTTGGTGGCAATAGGGGGCTCC<br>GCCCAGTGCCTCCCGAAAAGGGAATATATTCATTGGACCACATGCATTTGTGTGACC[T/A]A<br>GAGAAGATAGAATATCTCAATTGTCTAAAAACTTTTGGGCACCAGCATGAAAAATGCAGGC<br>ACTTCTAAAAAAAAAAAAAAAAAACCCTACAATGTCGCATGGAGAAGAACTTGATGGCAAAG<br>CAAGCCCTGGTTGAACTTGGTTTTAAGGAAAGTAATGTACAAACTTCTGGAGGTAAA |
| >Gm04_<br>8124424 | TCCCATTTATTGGGTCTATAATCGGCCAGTAGCAAAAGAAACATATTCCGGCAAGGCTTTTG<br>CTATTTTCACTCCCCTTGTTACATGTGGTGCATTTGGTGGCAATAGGGGGCTCCGCCCAGT<br>GCCTCCCGAAAAGGGAATATATTCATTGGACCACATGCATTTGTGTGACCTAGAGA[T/G]GA<br>TAGAATATCTCAATTGTCTAAAAACTTTTGGGCACCAGCATGAAAAATGCAGGCACTTCTAA<br>AAAAAAAAAAAAAAACCCTACAATGTCGCATGGAGAAGAACTTGATGGCAAAGCAAGCCCT<br>GGTTGAACTTGGTTTTAAGGAAAGTAATGTACAAACTTCTGGAGGTAAAATTACT |
| >Gm04_<br>14625604 | CCTTCCATCTATGTTCTTTTGGTGCGGAAAAATAAAGGATGTAGTTGTTATTGTCAAAATTC<br>CTATAATATATTTTCAACTTTTTCTCTTGGGCTTTATTTTATATCTTAACACTTAAAATATCCA<br>ATGTATAAAGTTTCTAATAGTTTGGCTTTGCACAAATTTCATACTGAACTACA[C/G]AAAGAC<br>GCAGAGCTGAATTAATCGGCATTCATCACATCACAGCGACACAGCCCTGATTTATCTTTTTC<br>TGCCTTTGGTAAGTTACTCAAAGTTAATTTGTCAGTGTTTGAGATGATGCATGATTGCATGA<br>ATATATTGTGGACATGTTCTTAAGCATTTATCTGTTGTTTTGTTGAGTTT |
| >Gm04_<br>14966203 | GCTCCACTGCCTCCACCTCCAGAATCTGTACGAACAGGTTTGGTACCACCACCTCCTCCAG<br>GTCCCGTGCGAATAGGTTCTGCCCCGCCTCCACCTCCACCTCCACCTCCACCTCCACCTC<br>CACCTCCTCCGGGTCCTGTACGAACAGGTTCTGTCCCGCCACCACCTCCTCCTCCTCC[A/G<br>]GGTCATGTACGAACAGGTTCAGCCCCACCACCACCTCCACCTCCTCCAGGTCCTGTACGG<br>ACAGGTTCAGCCCCACCACCACCTCCACCTCCTCCAGGTCCTGTACAAACAGGTTCAGCC |

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| | CCACCACCTCCTCCTCCTCCTCCAAGTATACGAACAGGTTCAGCTCCACCACCTCCTCCT |
| >Gm04_44170876 | CCAACAAACTTAACAGTAACACACAACAGTGGATGCAAATTACAAAAAAAGGAGCTCACCG<br>GAAGTAGTGCACAAATAAACCGATAACAATATCGAACCCAGAAATATAAAAGGGGAAAGAA<br>AGAAAGAAAGATAAAAAAGACGAATTAAGTATTAAAGAAAAGAAGAAAGAGAGAGAG[A/G]C<br>CTAAAGTAGCTGAAAAGAGAAAAGAGAGAGATGAATGAATTATATAGTGAGCGAAGAAGAG<br>AAGAGGAAGGAATAAAATTGTGGTGAGGAATAGGCGCTAACCTTCCCCTGCCCTCCTTTCC<br>AAGATATCTCTATCTCTAATCGATAACTCAATCTTAAAATATCTACCGTAACATTTC |
| >Gm04_46190568 | GTTGAAGAACATATGCAACAAAAATGAATAGCAAATCAGGAAAGCTACTCTTATCTTGCATA<br>ACACCACCTAATCTCAACAATCACAACATAAAAGAAAGAACCCATTATCCACTACAACTTTA<br>TTTATTTATTTGTTTGTTTGTTTGTGAATCCTCAGGCTATAAAACGAGTTAAGAC[C/G]TACGT<br>GACAGGATCTGAAAGAATTGCCCTGAGTGACTCCCCTGACTCGCTCGAATACATAGCATCC<br>TTCCTCCCACTAAACCCACAACCACTATCATCCACCATCACTTTCTGCCCAGAAGCCCCTTC<br>GCCGCCGTGAAGATAGTGCGAATAGTACTCCTCACAGTCAGTTTCAGCAACG |
| >Gm04_46190569 | TTGAAGAACATATGCAACAAAAATGAATAGCAAATCAGGAAAGCTACTCTTATCTTGCATAA<br>CACCACCTAATCTCAACAATCACAACATAAAAGAAAGAACCCATTATCCACTACAACTTTAT<br>TTATTTATTTGTTTGTTTGTTTGTGAATCCTCAGGCTATAAAACGAGTTAAGACT[G/C]ACGT<br>GACAGGATCTGAAAGAATTGCCCTGAGTGACTCCCCTGACTCGCTCGAATACATAGCATCC<br>TTCCTCCCACTAAACCCACAACCACTATCATCCACCATCACTTTCTGCCCAGAAGCCCCTTC<br>GCCGCCGTGAAGATAGTGCGAATAGTACTCCTCACAGTCAGTTTCAGCAACGG |
| >Gm05_806881 | AGTAAGCAGAATAGTTTCTCTTTATCCAATTTCAATTCAACTCACCCAAATATGACAGCGTT<br>CCACAGCATTATGTTGTTATCCTGAGGTGCCCCGCTGATTCCTGCAGGCGGGTCTTGTTGC<br>AGCCTCTTGAAATCTCTCATGAGCCTCTTCCTAGCAGGAGTCGACATTGATATCAC[C/T]TA<br>GAAAAACCAACAGCCACAAAGAGAAAACGGAAATAACTTCAATTTTCTATTAAAAAACTATT<br>AAGAAGCATAACCAACAGGTCAATTCAGATTCCAACACAGACTAAAGACGTGGAAAATGAG<br>GGGTAACACTAAGAACACATTTGAAGATATAATTCAAGAATTTAACTTGCAAAAT |
| >Gm05_1305399 | CAGATAATTCAATTCTTCAAATCAAGTTCTTTTTGTTAACGTTAGTTTGTATCCACTTAAAGA<br>TGAGAGTGACGATTTTTTCTTTTTCTTTTGTTATTGTTATTTTGTCTTGTACAGGTTTCATCTG<br>ATGTTAACATAGAAAAGGAGCAAGATGAAGAATTTCGCTTTCCTGTTGACCA[G/T]GCATGT<br>TATTTATTTTTTTCCTTGGCAAAAATATTAGTCAAAATATTTCTTAAATTCTGTGATTTTCTTAT<br>GTGCTTGATGTAACCGTATATGTCATAATATCCTTACTGGAAATATGAAATTCTCTTCAGCTT<br>ATCGTGAGAGGCGGGAACAGAAGGCTAATGCAGGACATAGGTAAGC |
| >Gm05_1964837 | GTGGTGCATGCCACCGGCGTTACCCCGACCACCGGGATGCTTGCGGTGCTTCCCGATACG<br>ACCGTGACCGGCGCTGACGTGGCCTCTCTTCTTCCTGTTCTTCTTGAACCTCGTCGTCATT<br>TTCTCTCCTCCGCTCCTCTCTCTCTACCACACTATCTCTTTCTCTCACAGAGTGGCTG[T/C]A<br>CAAACGAATTAGGGTTTTGGGACTTATAAGCCTGTCCACTGCTCGCGATTTTACTTATTTGC<br>CCCCTCTCTCACAGTCACACATCATGTTGGTGTTTTTTTATTAATTAAAATTTACTAGAGTAA<br>ATAAATATCTTTAAATATAAATTATATTATAATTTAAATTGTATTTAATACATA |
| >Gm05_2011564 | GATAGTAGGTTTATTTTGGATGTTAATGTGATAGATGGTACAATGATGGCTCCATCTACTGC<br>ATTTACAAAGATCTGGCGGATGCGCAATAATGGCACTATAGTCTGGCACAAGGGAACTCAA<br>CTTGTTTGGATTGGAGGAGACAAGTTTAGTGACTCTCATTCAGTTGACTTAGAGGT[G/A]TG<br>ATAAATATTCATATTGTTGTTTAATTATTTCTTTTAAGGTTTATTAGCTTTTCTCTGGGTTTGT<br>TTTGCTTGTTATAGAATCTGTGGCATGCTAGTTTTTGAGTGCTCTCTCTTGTTAAACATCCCA<br>GGTTCCTGAGGATGGTGTCCCTTTGGAGAAGGAACTTGACATTGCCGTTGA |
| >Gm05_2011565 | ATAGTAGGTTTATTTTGGATGTTAATGTGATAGATGGTACAATGATGGCTCCATCTACTGCA<br>TTTACAAAGATCTGGCGGATGCGCAATAATGGCACTATAGTCTGGCACAAGGGAACTCAAC<br>TTGTTTGGATTGGAGGAGACAAGTTTAGTGACTCTCATTCAGTTGACTTAGAGGTT[C/T]GAT<br>AAATATTCATATTGTTGTTTAATTATTTCTTTTAAGGTTTATTAGCTTTTCTCTGGGTTTGTTT<br>TGCTTGTTATAGAATCTGTGGCATGCTAGTTTTTGAGTGCTCTCTCTTGTTAAACATCCCAG<br>GTTCCTGAGGATGGTGTCCCTTTGGAGAAGGAACTTGACATTGCCGTTGAC |
| >Gm05_3005246 | AATGTTAGTTTTGAAAAATAGGAAAGAAGAGAATGAATTCGATGACAGAGATTGAAAGAATG<br>AATACAAACCCGCGGCTGTGCATACGACCCATGGCTGGTGGCTGTCACTCGCTTGAAGCT<br>GCGCTTCTTCTGATTAGGGTTGCGACTACGACGCTCTTTTGCACACTCCACCACTCT[A/G]A<br>AAACCTAGATTATGCAGTTTATGTATTTTATAAGGATAAAAAGTGTCAAGCCCAATAGGTTT<br>GATAGTTTTTGAAAGGAAATTGCTACGGGCACCCGGCAAGATTGCTGGTGCACCCAGCAAT<br>TTTTTATAATTCCCAAAATACTCTTTAATGTTTTTACGGAAAAACTTTCTTTCACA |
| >Gm05_3461049 | AATTTTTTTTTAAGCAAAATTAATTTATACAAACCCATTAAAAAAATACTTATTTTATTAAAATA<br>AATATTTTTCCAAGAAATGAATTTAAACAAATTCACCTCTTATTAATGGGATTTGGGAATTGA |

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| 5 | TTCTATGACGAACGCCGAGAATTTTGGTCTCTACCGTCTTGACTCTTTAGG[G/C]TCATAATT<br>AGATACAATATTTCTACAATTCTACACATTTTACGTCGGACAATGTAAATTAGATTTACATGA<br>GATTGATATCAACTTATTTGTCCTCTGTATGAAGAGGTTGCGAATACTTGTCATAGAGGAAT<br>TAACTTTTAAAATTTAAAAAGTCAAATGAAGTGCCAGTGACTTCATT |
| >Gm05_<br>3461049<br>6 | ATTTTTTTTTAAGCAAAATTAATTTATACAAACCCATTAAAAAAATACTTATTTTATTAAAATAA<br>ATATTTTTCCAAGAAATGAATTTAAACAAATTCACCTCTTATTAATGGGATTTGGGAATTGAT<br>TCTATGACGAACGCCGAGAATTTTGGTCTCTACCGTCTTGACTCTTTAGGT[G/T]CATAATTA<br>GATACAATATTTCTACAATTCTACACATTTTACGTCGGACAATGTAAATTAGATTTACATGAG<br>ATTGATATCAACTTATTTGTCCTCTGTATGAAGAGGTTGCGAATACTTGTCATAGAGGAATT<br>AACTTTTAAAATTTAAAAAGTCAAATGAAGTGCCAGTGACTTCATTC |
| >Gm05_<br>3679675<br>3 | AGCATCAGATTTAGATGATGTAGAATCAAGGCCAAGACATTTGAGGAATGCTTCTTTGGCTA<br>AGTTGAAATAATAGCAAGGGTGGAGGAAATACACAGACGAACTTGAAGCCTCCCCTTCTGC<br>AAACTCTTCTCTCACTATTCCTATCTCACCTTTAATACTTGTGTTCTCTACTCCCT[T/A]CCAT<br>GTCAATTTACTTTTAGTCAAAAGGAAAATAAATTATAATGCATATTTTCATGTAAAATTTTGTT<br>ATGATTAGATTATAGTTAGAGCCTATGATCTAATAATATTTAAACTCGAGATTCAATGTACAC<br>AAAAAGATTCCCATCTTTCTTTTATGCTTTAATAATATACTTATGAGAG |
| >Gm05_<br>3727103<br>2 | TTGGGAATTCCCTATTTTAAGGTGTTGAGAAGTAGTGTATTGATAGTTGGGAGAAGGGTTA<br>GGTCTTGAAGGTGGGATTTTCATGTGGAAGGTGGTTTGTTTCAAATCGAAGTGTGAGATAT<br>GCTGAGCTCTGATGATGGAGACATGGATGTGTTCTTTGACTCAGTGGATAGTTTGTC[T/G]A<br>CTCAAGATTCTGTTTTAGCCAAAGAAGAGTTTGGTTCTGGAAGGTGTGGTTATGACGAAATT<br>TGGGTGAAGGAGCCTGTTAGTGTGAAGGAGAGGAGGGAACGTTTTCTGCAGGGTTTGGGC<br>TTAGCTGATTCTTCTTCCAAGGTTTGTTCACAAGAGAAAATGAACTTAGATGACTCA |
| >Gm05_<br>3866506<br>1 | CTCTTGCAACAAGTGCAGGCCTCACTCCCGCGACAAAATCTTCATCCTCCCTTTTGATCACT<br>CCTCCTCCTCCTCTCACAAACACTCTTCCTTGCTCTCAAGCCCCAACGGGATTTTCAGGTC<br>CCTTGTTTCCAAGCTCTCCCGCAAGAGCCCCATGTCTTCTTCCTCACATGACCCTC[C/G]TC<br>CTCCTCCTCCCACCTCCCGAGAGGAACATTGGAAATTGGCTGTGGCCGAACTCTCCCACA<br>AGCTTCTCCACGCCACCAGGAAAAGAGACGAGGCCCTCCTAGAAGCTTCCAGACTCATGC<br>ACTCCATGTCCCAGTTAGAGAAGAAGCTCAACAAGCTCGAACTCTATTGCCACACCTT |
| >Gm05_<br>3941063<br>1 | AATTCAAGTGAAACCGGTTTTAAATTGCTCCAAGCTGCAGCCTGCAACACTTCACGCCCTA<br>CTTCAATTGAACCAGTAAAACTGACCTGAAGATCAACACAATCAAGGAAATTGAAATTTTAC<br>AAGTCAAATCAATTAAGAGACTAGTACTTGTAAATATTTGACATGTAACTTCTTAT[A/G]ACC<br>GCATCTATGTCCATGTGTGAGCTTATTGCTGCGCCAGCAGTTGGGCCAAATCCAGGTACTA<br>TATTAAGCACACCATCTGGGATTCCAGCCTTTTAAAAGGGACAAACCCAATAGAATTAGCCT<br>AAATTCAAGTAAACTTTGTGAGGGTCATCTTTGATAAGGAAATGAAACTATGTC |
| >Gm05_<br>4140548<br>4 | TTAAAAAATAAAGAGCTATAATATAAGATTTTAAATTGAAGAGAAAACGAAATTTCCTAACAA<br>GATTTAATTATTAATTAACTAGAACTCGAGTGAGGGAGGGTTCATTTCTCGGATAGGAAGTG<br>GAAGTGAGAGTGACGAGGAGAGCCACCAAGCAGAACTGCTTCAGGTTGCCAACT[A/G]GTA<br>AGTTTCGGATTCTCTTAAAAAGCAGTATTTTCTTATCTGTTGTAATTTGACTTCGGATTAACC<br>TTCTGCCAGTTGACTTTACAAACTTGGGATACTCCACATGTCATAAACATTCAACGTTGTAC<br>CACTGTTTTTCTTTCATGTTTCTAGTAATTTACCCCACACTTTATTTGCCCC |
| >Gm05_<br>4187381<br>5 | TTGACCTGATATTAACTCAACACATCAGTCATATAGAAAGAACAGAAAAACATGAACTTAAA<br>AACAAGATCTGTAAACAGTAATTAATAATTACCCCGAAAAATATGCCTGAATCGCCACTCGT<br>TCCCGTGCAGATCCTTGGCCACCAACTCCTGGGTAGGTGGCTGCTTCGTCATGTC[C/G]TG<br>TCAACAAACACGAAACAAAGGAAGACTCCCCCAACTTCAGCACAAGGAAACAAACAAAGTA<br>CGTGGAAGGAGAAGCTAAAAGGGTAAAAAAAAAAAGCAGCAAAACCAACCAGCGGAGGGAG<br>GCATTCATCGGCATGTCGCCTCAGCACCGAAAACCCACCGTGAGTGCTCGTATCAGA |
| >Gm06_<br>2019325 | CAAATACTAACCCAAGGAAGGATCTACAGATTCTATTAATTAGTAGCAGCATAACAGTATCG<br>ATAATTCTTAGGACTGTGCTGCTTATCAACATGAAGATTGAAAATCATAACAATAAAAGAGC<br>AACTTTTAGGAGCAAGATGTTTAAGTGGAAGAAGAAAATAAAAATAAATGGAAGT[C/T]ACC<br>GAAGAATGATCCAAGCTGTACATTACAATTTTGTCATCTGCAGCTCCTGAGATACCCCCTTT<br>GCAAGACCCATCATTACAGACGCTCAGAACTACAAAACTGATCAGTTATTGACTACCATAAA<br>TTTTATTAAAAAATAAAGAATTCTTAGGAAGCTAAATTCCACACCTGGCTCAG |
| >Gm06_<br>8655798 | CGTAAACGGCTTCTACTCGTTCCTGACGCGAGGAATCGACGATCTAGAGAGCGTGTTCCTC<br>AGCACAAACTTCATGTCAATTCAATTCCTCCAAAGAGCACTCTCTCTTCTAAGATCATTCCA<br>CACCCAATTGACTCTCCTGGTTCAGAAACTCCACCTCCCCGTCGGCGACAAATGGC[G/T]C<br>GACGAGTACATGGACGAAAGCTCCAAACTCTGGGACGCCTGCCACGTCATCAAGTCCGGC<br>ATTTCCAGCATCGACACCTACTACTCCGCCGCCCTCAACATCACCTCCTCCCTCGACTCCC |

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| | ACCGCCCCATCACCCCCCAACTCTCTCGCCAGGTCACCAATTTTTCGTTCTCTCTATT |
| >Gm06_8655844 | GAGAGCGTGTTCCTCAGCACAAACTTCATGTCAATTCAATTCCTCCAAAGAGCACTCTCTCT<br>TCTAAGATCATTCCACACCCAATTGACTCTCCTGGTTCAGAAACTCCACCTCCCCGTCGGC<br>GACAAATGGCTCGACGAGTACATGGACGAAAGCTCCAAACTCTGGGACGCCTGCCA[T/C]G<br>TCATCAAGTCCGGCATTTCCAGCATCGACACCTACTACTCCGCCGCCCTCAACATCACCTC<br>CTCCCTCGACTCCCACCGCCCCATCACCCCCCAACTCTCTCGCCAGGTCACCAATTTTTCG<br>TTCTCTCTATTTGTTTTAACGTGTATCCTCCTTCGAAACAAAACAAAAAAAGATTCT |
| >Gm06_10814320 | CCCGAGAGTAATAAGGCACTAGAAGAAAACTCTACATGTCAGCAAAGTTCATCTTCCCAAA<br>ATGAAATTTGTAGGATGGGCTGGGTAATTTGGACCTGATATTGTTTTTCATAGATAACCATG<br>ATATTCGTAGACCAGAAAAATGAATATACAATGTCATTAACAGGGAATAAAAAGTT[G/A]CTC<br>TTACAATTTCACTTCTGGTCATAACATGAGGAACTACAATGAAGTAGGGGAAACAATGACAA<br>ATTTCAAATGGTTGAAGGTAAGAACTTCCTGTACAAGATGACAATCACAAAGCATGAATAGA<br>ATGGGGAGCAGAAAGGAATGCTACCAGTTCTCCTTAGCAATTTTTGACTTTTC |
| >Gm06_10888465 | TGATGGCCATACCAATAGCAAGAAAACATGAAGCAGCATCAAAGGGGGCCACAGGTCCAA<br>GAGCCAATGTATCAACAAGTACATTTCCAAACAGCCCAGACAAAATAGCAACAAGACCATT<br>TCCAAGAAATATAGCCTTTGAGAATGTTAATGATAGCCATTGTTGATCAAAGCCCCTC[C/T]G<br>ACGATGTTTAAAAAAACAGGCAATTCAGAATCATAAATACACAACGTAACAAGAAGGAAAAC<br>AAGACCAAAAAAAAAATTGTAACAAGAAGTATACACTGAAAAATGTGTCTCAGCTCTACACTG<br>TGGATTCAATATCCATTTAACGAATCCAATAAATACCAAAATGCAACTTTCTCAA |
| >Gm06_10888466 | GATGGCCATACCAATAGCAAGAAAACATGAAGCAGCATCAAAGGGGGCCACAGGTCCAAG<br>AGCCAATGTATCAACAAGTACATTTCCAAACAGCCCAGACAAAATAGCAACAAGACCATTTC<br>CAAGAAATATAGCCTTTGAGAATGTTAATGATAGCCATTGTTGATCAAAGCCCCTCT[A/G]AC<br>GATGTTTAAAAAAACAGGCAATTCAGAATCATAAATACACAACGTAACAAGAAGGAAAACAA<br>GACCAAAAAAAAAATTGTAACAAGAAGTATACACTGAAAAATGTGTCTCAGCTCTACACTGTG<br>GATTCAATATCCATTTAACGAATCCAATAAATACCAAAATGCAACTTTCTCAAT |
| >Gm06_45353845 | CCTTGATAAACCTGAACTTCAAGGGAAAAAAAACACACTTTGTTAAGATCCTCTCTCATTTG<br>GCAACGATTTCCGTATCCCAAAGTACCAAACTCCAAAAGGTGTCAACCTGCCACTCCCACA<br>CGCACATGGCAGCTACCAGTAAGAGGGAAAACATTAAAAAACAAGAACACGTCAGC[G/C]C<br>CATCGTTGTAGTTATCACTATCATCATCATCATATTACAATTCTCCCACTCCTTCCCTAAGCT<br>GCCGAATCAGCACTTCGTCATCGATTCCAATACGGCGCCGTTTTCCTTCGCCATCAAGCGC<br>AACGCATAACAATCGTCAGCGCCACCATTTCCCTTCGGTTCCCAAGAATCAATGG |
| >Gm07_2019872 | CAATGATGCTCCTGCCCTAAAAAAGGCAGACATTGGGATTGCAGTGGCTGATGCAACCGAT<br>GCAGCTCGAGGTGCATCAGACATAGTTCTTACAGAGCCTGGTCTGAGTGTGATTGTGAGTG<br>CAGTTTTGACAAGCAGAGCCATTTTCCAGAGAATGAAGAACTACACCATCTATGCTG[C/T]T<br>TCTATCACAATCCGAATCGTGCTGGGCTTTATGCTGCTAGCTCTTATCTGGAAATTTGATTT<br>CTCACCTTTTATGGTTTTGATCATTGCAATACTAAATGACGGAACAATTATGACCATTTCCAA<br>GGACAGAGTGAAGCCATCACCTCTGCCAGATTCATGGAAGTTGAATGAGATTTT |
| >Gm07_2482464 | TCCATAATTGACAAACTTAGAGTAAAGAACGAAATAAATACGTTAAAATATCAAAATGATTAA<br>ATGGAAAAATCCACATCACAAAATGTGCGAAAAAAAACAAGAAGGGTTTAGTTCCAAGATTTG<br>ATACCCATTCCTAGTGCTGAGAGCTCAACTTCATTATGCTGTTGCATATACCTC[G/T]GCGA<br>AAAATAAAAAATAAATAAATAAAAAACAAATTAACAAAAAAATTAAACAAAATCAACCGTCTG<br>CGCTACAAAATTAAACATGTCCGAATAACTGAAAATATTCACGAGATTGATATCGAAGGGAA<br>ATGGAGTGAGTACCTTTGGCGAGATTGACGTAGAGAAGAGGGGCTTTTTGG |
| >Gm07_2482465 | CCATAATTGACAAACTTAGAGTAAAGAACGAAATAAATACGTTAAAATATCAAAATGATTAAA<br>TGGAAAAATCCACATCACAAAATGTGCGAAAAAAAACAAGAAGGGTTTAGTTCCAAGATTTGA<br>TACCCATTCCTAGTGCTGAGAGCTCAACTTCATTATGCTGTTGCATATACCTCT[T/C]CGAAA<br>AATAAAAAATAAATAAATAAAAAACAAATTAACAAAAAAATTAAACAAAATCAACCGTCTGCG<br>CTACAAAATTAAACATGTCCGAATAACTGAAAATATTCACGAGATTGATATCGAAGGGAAAT<br>GGAGTGAGTACCTTTGGCGAGATTGACGTAGAGAAGAGGGGCTTTTTGGT |
| >Gm07_5667815 | GCATAATTTTTATAAATTGTGTAGGCAATGACTCCAACATTAGAGTTAGAGGAGATTGATTC<br>ACCAAAAAGAAAATGGTTAGAGGAGATCAACGAATTAAGTGGCTTGGTGCCTACCGAAAAA<br>AAAAAAACAAAGTGGCCCAATTTTATTATATTTGTTTGTGTGTGAATAAAAAAACA[G/A]ATT<br>GTGCGTGTGGTCTACACAGTTAGTGGTGAAATACACTGTTCTATTCTATTTATTATGTAATG<br>TGTGTGATTATAAGTCTTAAACGACCCTGGAGAATAAAAATGAAGTGATGAACTGTAAGTTT<br>GTAACACTAAAACTTGACTCTATTGTTTTATGACAAAATAAAATAAAAATGTG |
| >Gm07_5855116 | GTGAAAAGCATATTTGACGTGAAAACAACTACGGGATTGGGAGCAGCAGCCTTCCCTAGAC<br>CTCTCCCTTTTTCCCTCAAGAAATTGACTTTAGAGAGGCTGCCAAAACTGGAGAATGTCTG |

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| | GAATGAAGATCCTCATGGAATTCTAACCATGCAACTTCTACAACATGTTATTGTTGA[C/T]AA<br>ATGTAAATGCCTTACAAGTGTGTTTCCCGCATCAGTAGCCAAAGATCTTGAAATACTAGTTG<br>TCAAAGACTGTGAGGAATTGATGGAAATTGTTGCAGAGGATAATGCAGATCCAAGAGAAGA<br>CAATCTAGAGCTTACGTTCCCTTGTCCCTGTGTGAGGTCATTGAAACTACAAGGT |
| >Gm07_<br>1195097<br>7 | CAGATCCGCGAAACCATCGAAATGCTCTCAATAACCGAAAAAACCAAATATTGCGACGCGG<br>AAAAAGGGGGCAGAATGGTAAACAGACGCAAATTTTCAGGGAACAGAGGCTGAAGAGAGT<br>GGGAGTGTGGGTAGGGTTTTGTTTTGTGAGAGAGAAAAAAAATTAAGAAAAAAATAAA[A/G]<br>GAAAAAAAAAAAAAAAGAAGAGAGGAGGGGGGAGAAGAAGAGAAGAGAGACTGAGAGGG<br>TAACCAGAAACCAGAATTTTTAGGAGTGAGAAATATTTTTTAGAGAGAGAAAGAGGTAACAA<br>ACTGAGCAGTGAGAGAAGGGTCAAAAGAAGAAATAGGTTTTTCAGGAGATCGTAGGGTT |
| >Gm07_<br>1720248<br>9 | TCTCCCTGGTGGTTCTGCTCAGACGAAGGAGTATTATTCCGACTCTTCGCGCAGAAGGAAG<br>AGTCTTGATCGGTCTAGTTCTATTAGGAGAACTGCTGCTGCTGTTGTTGCTGAAATGGATG<br>AGTTGAAGGCTGTTGCAAATGCTAGTGCTAATGCTAATGCTAATGCGAGGGTTACTC[G/C]T<br>GCTGCTTCTGCTGATTATGTGCATAATAATATTAATAATAATCCTTTGAGGGACTCCAATTTG<br>AATTCGAATTCGAATTCAAATTTGTTGAGGGATGATGAGAAGGGGAGTTCTAAGAAGTCAT<br>CGAGCCCGGTGGAGGGCGTGGAGTATATGGGGATTGATACACCGGAGGGGAAGTA |
| >Gm07_<br>3646081<br>4 | AAAGAAATGAGACTGAAGATTATTGAGGAAGCTGAGGAGTATAAGGTGGCTTTCTATGAGA<br>AAAGGAAGCTTAATGTTGAGACTAACAAGGTGCAAAACAGAGAAAGGGAAAAGGTAAAGTT<br>TACACACAACATATATGTATCTTCTATTTTAATTTCAGAAATAACCTTTGATTGTGG[G/T]GCA<br>GTTATACTTGGCTAATCAAGAGAAATTCCACAAAGTGGCTGACAAAAATTACTGGAAAGCTA<br>TTGGGGAGATCATTCCTCGAGAGGTTCCCAACATTGAGAAGAAAAGAAGCAAAAAGGATCA<br>GGAGAATAAGCCATCAATCACAGTCGTCCAAGGCCCAAAGCCTGGCAAACCCAC |
| >Gm07_<br>3646081<br>5 | AAGAAATGAGACTGAAGATTATTGAGGAAGCTGAGGAGTATAAGGTGGCTTTCTATGAGAA<br>AAGGAAGCTTAATGTTGAGACTAACAAGGTGCAAAACAGAGAAAGGGAAAAGGTAAAGTTT<br>ACACACAACATATATGTATCTTCTATTTTAATTTCAGAAATAACCTTTGATTGTGGA[T/A]CAG<br>TTATACTTGGCTAATCAAGAGAAATTCCACAAAGTGGCTGACAAAAATTACTGGAAAGCTAT<br>TGGGGAGATCATTCCTCGAGAGGTTCCCAACATTGAGAAGAAAAGAAGCAAAAAGGATCA<br>GGAGAATAAGCCATCAATCACAGTCGTCCAAGGCCCAAAGCCTGGCAAACCCACA |
| >Gm07_<br>3751919<br>1 | TTCATCGTTTACTGTGCCCTTAATTTTTCTTCTCCCTCTTCAACACCATTCGTTCTCCAGTTT<br>CTCTATCTAACTATCTACACACAGACAACGACGTCGTCTTTGTCATGTTTAAAACTCTTGCG<br>AGATCCATTCAATCCTAAACACTGAAGAAAAATAGATAAATAAATAAAACCATG[T/G]TTGCG<br>GGTAAGGTAAGAGTAGCAATGGGGTTTCAGAAGTCACCGGCGGCGGCGCATACTACTCCT<br>CCGCCGCAGAAGAAGCAGCCTCCTCCTCCGTCGCCGTCCACCGCGAAATCCTCGTCTCAC<br>AAGTCCTCATTCTCTCGCTCTTTCGGCGCTTACTTTCCGCGCTCTTCCGCGCAGG |
| >Gm07_<br>3751919<br>3 | CATCGTTTACTGTGCCCTTAATTTTTCTTCTCCCTCTTCAACACCATTCGTTCTCCAGTTTCT<br>CTATCTAACTATCTACACACAGACAACGACGTCGTCTTTGTCATGTTTAAAACTCTTGCGAG<br>ATCCATTCAATCCTAAACACTGAAGAAAAATAGATAAATAAATAAAACCATGGT[C/G]GCGG<br>GTAAGGTAAGAGTAGCAATGGGGTTTCAGAAGTCACCGGCGGCGGCGCATACTACTCCTC<br>CGCCGCAGAAGAAGCAGCCTCCTCCTCCGTCGCCGTCCACCGCGAAATCCTCGTCTCACA<br>AGTCCTCATTCTCTCGCTCTTTCGGCGCTTACTTTCCGCGCTCTTCCGCGCAGGTT |
| >Gm07_<br>3785823<br>2 | CTGTAAAGGTGAGAAAATTATTCAATGAAATTGGGAGACATCCTTCTCAAATTTAGGAGAAG<br>TAGTAGTCTTAATGGGAGCCCAGATATCTGCACCATTGGTCTCAGCAACTCCAATAGTAAAT<br>GACACAGGAACAAGACATAACCCTCTACTCCTCAGGCTGCATGGCTCCATACCCT[A/G]AA<br>GTAGCAACAATTCAAATTATAACCCAATTCAACACCAGGAATAACACTAGTCACATAAAGAG<br>AAAATAATTCATGCCCCAACATCTAAAACCATAAATTGACATACGATAAATTTGTTGACTTTT<br>ACAAAAGGACCTAAAATCATGATTTCTGATTGGTTAGTGCATAGAAATTAAAC |
| >Gm07_<br>4344233<br>1 | CTTGAGACAACAATATGGACTGGCCAAGTCAGTCAATGAAGTATTGTTGGTCATTGAGGCT<br>TACAAAGCTTTGCGTGACCGAGCACCCTACCCTGCTAATCATGTTGTTGGCCATCTCAGTG<br>GGAGCTTTGCTTTTATAGTTTTTGACAAATCTACTTCTACCCTCTTTGTGGCATCTG[A/G]AA<br>GTAATCATAATCCTACCTACCAAATGTCATGATCCACCACCATATAAGCTTTCATTTATTTCT<br>CATTTTTTGCATGTATTGTTCTTGACAGGATCAATATGGTAAGGTACCTCTGTATTGGGGAA<br>TAACTGCTGATGGCTACGTAGCATTTGCTGATGATGCAGAATTGCTTAATGGT |
| >Gm07_<br>4430467<br>2 | GTCCAGATCCACCCCCCTGAAGCTGAACTTCTTGAACGTTCTCTTCTTTGGCTGCCCTGCA<br>GCCGCCGCCGCCGCCGCCGCCGCCACATCAACCTCAACGTCTGCCTGCAACATGCACATT<br>CAACAATCATTAAGAAGCCACCACAAATAGGTCTGAATCTCTTGGGAGAAGAAGAACT[C/G]<br>ACCATTCTCGCCGGCTGCTAGGGTTTTGGCTTCCAACAACAACAACAAACAAGAGAAGGCA<br>GTGGCAGCGAAATAACCTCAGGCTCTTTCTTATGCTGTAGACCTAGATCAAACTCACACCT |

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| | TTGACGGGCCTCCACTTCTACGTTTATTGGGCTTCCATGTCCTTTACTACCCCCAAAA |
| >Gm08_886107 | GGGAGCGACGAACCTTGCGAGCACAACCTTCACAATGCATGAACACTTTAAGCACGATTTC<br>TGGCGGCGCAGATTTCTCCTTGAATTTCTTCTCATCTGATTTTTTCTCTTCTTCTTTCTTTTC<br>TTCTTCTTCTACTTTTTTCTCCTCCACTTTGTTTTCTTGGGATTTTTCCTCTTCC[C/T]ATTCAG<br>AACACAAAAAAAAAAGAAAAATCAGGATCCGAAATGATACAATGATGATAATCGAAGAAAAA<br>AAAAAGAGAAAAAGAGAATAGTTATGCAGACCTGACCCATTGGCGTTGAATTGGTGTTCAA<br>TGCTGCAGATTGGTGTTCAATTGGTGTTCAATGCTGCAGAGATAAGCTTGC |
| >Gm08_2631307 | GAAAGCTAACTCTATCACTAAGTTTCATCAATCACCACCTCCTTTGGTTGGAAAAGTTCAAT<br>TCTGTGTCCCTTCCAATTTCTGCAGACTTCTGAAGCTTACTCATGACAGCATTCTTAAAACT<br>GATAGCTTCTTGAATCTGAGAGCAAGACCTTTGCATTCTAGTCCCACTTAAACTA[G/T]ACCT<br>AGACTCCATCATCTCGTTGAGGGTAAGCCTCTTCTTTGGCCCAGCTGGATCGGGGCGTTG<br>CTTTGGAGCACTATGAGACCTCAGTTTGGCCTTGAAAGACTGAGTGCTGGCCATGTAGTTT<br>GGAAAATTGTCATGATACTGCCCATAGAAGAAGTTGTTCTCGGTGCAAACACTTT |
| >Gm08_2825857 | GCAAATTACCATATTTGGCAATCATTTAGCAGAAGACATGCGCTGCAGAGATGACATCCAG<br>CTACTTGAAGGGCCCATTTTACTGCCTTGTGCATGTCCAGGGTTGGAAGCTTCAGCAGACA<br>AGGATTGCTTTAAGGAGTTCCTTTTTGAAGTACTAGCAGGAGAAAATGAAGTAGAGG[T/C]T<br>ATATTTGCTTCTCCAAAAATCTGCAAAAAAATAATTGAACAATGCTTGCTAAACACTCATCTG<br>TTCAATTATAGATATATTAGTGTGCAAGAAAAGTGAATTTTTTAACATGACTTACATTTTTGT<br>CAAGTGGATTCTCATAACTCAAATTTTTACCCACTGGTGATTTAAACTGAATT |
| >Gm08_4469305 | TAAAACATTATGGAAGAGAAAATTAGAATATTCACGTAACAAAATTTGTAGGACTACACTCA<br>TCATCATTCACACGTTTTAATTAAAAAAATAAATGAAGAAAACCTGCAGGAACTACTCCAAG<br>GGGCATCTTAATTGCAGTGTCCCAGTCCTGCCTCTGAAGCAGTCCATTTACAACC[G/A]ACT<br>AAAAATGTGTGGCGCTAGTAAGATTATGAAAGAGAAACATTAGACAATGATGTGTACAAAA<br>GAAACATCAAAACAATCATTAGTTGACAGCCATTACCACAATCACAATGGTACTTGGTACGA<br>ACTGCAACCAACAACAATAATGTCAATGAACTAACCTCGACCAAGATCCCATCT |
| >Gm08_4645562 | TTGATTTTACTTGCAACAAAAAAATTATATATATATATAGATATTATTAAATATTATATTTATTC<br>CATTACATTACAAGTACCCCACACTTTTTAAAAAAATTGAGAACACAAGGAATTTGAGGCAT<br>CAAGTGGGTGAAGGGAGGGTCCCCTATATATATAAGTGGATAGAGCATGCAG[C/T]GCAAT<br>GCCAGCAGCGGGGAAGGTAAGTAGGTGTCTCTCACTCTCCCACCGAATCCACATTCTAAA<br>GTAATACGCCGGAGAATGACGTCACACTCCCACTACCCACCCGACTTAGACGCCGACTCC<br>GTCACCTCCTCCCCACGCTCCGATCACTTCCACGACGCGCCGCCCCGCATCCGCT |
| >Gm08_7519670 | AACTTTAACTGATATCTGGAAAATGACAATTTTGTTAATACCTCAATTGAACGCTACAGTTAG<br>TTTTGCATTACCGAAAAAAAAAAACACATAATAATGCTGATGACTGAACACTCATCATTGTAT<br>AATTTATGATCATCATATATTTTTTATAAAAACAATATATTCATTTGTTCATC[A/G]GTTCGGAT<br>TTCATAAAAACATACTAGCCAAACACTAACTAAAATAAAAAAGCAAATCTAAAGAGAAAAAT<br>CTACAAACAAAAACTAGAAAACATCTAAACTTATTCATCTTCACTACTTAACCTAAGAAGAAG<br>CCATAATTATCTCACATCACGGATGGTGAAATATTATTCTTTAAACA |
| >Gm08_7519673 | TTTAACTGATATCTGGAAAATGACAATTTTGTTAATACCTCAATTGAACGCTACAGTTAGTTT<br>TGCATTACCGAAAAAAAAAAACACATAATAATGCTGATGACTGAACACTCATCATTGTATAA<br>TTTATGATCATCATATATTTTTTATAAAAACAATATATTCATTTGTTCATCCGT[G/C]CGGATTT<br>CATAAAAACATACTAGCCAAACACTAACTAAAATAAAAAAGCAAATCTAAAGAGAAAAATCT<br>ACAAACAAAAACTAGAAAACATCTAAACTTATTCATCTTCACTACTTAACCTAAGAAGAAGC<br>CATAATTATCTCACATCACGGATGGTGAAATATTATTCTTTAAACACAG |
| >Gm08_9782098 | TCAAAACCAAAAGGAGAAGACTGAGACAAAGCCACCCAAACATACTAGGAGCGAAAATACA<br>GAAAATTAAAGAAGATTCTTACCCCCATTTCGTGAGTACATCCCCCCACTCACATAACCAGA<br>AATAAAAGATGTGAGAGCATAACACACAATGAAAGTAGTGATGATGGCTCCTCGCC[G/T]GA<br>GACAAGCAATGAAGGAACTTACATGACAATCAACAAGAGAGAAAGGAACAAACAACACAAA<br>GTGTTCCAACTAGTATGAAGTAGAAATAGCCAACTATGCAAGCACTGCTACATGCTTATTAC<br>TAAAGTAACATTAGTACACAACTAGAATCCAATGAATTCATTATTCAGACTTATG |
| >Gm08_10767940 | CTTAATGCTTTCGAGTTTTTATTCCTATTTACGCGGCTCTGCTTTGCTTATTTATCTAACTCT<br>ACTTCTACTTCAGAGAGGACGATTCTCAAAGCTCTCTTCCAGGTACTCCTCGATTCCATCCT<br>TTTTTTCCGAACAAAACATGTCTTCTTGTGTTCGCCGCATGATATGTTGTTTCT[T/A]ACAGC<br>AGAAAATGGTGAGGGCGAGGAAGAGGAGGAGGAACTCACGGAACCTAAAATAAAGCTTGC<br>TATGTGGGTATGCATATAACCTTTTACTCTTTTTAATTTAATTGGGCTTTTTAGCTATCCATT<br>GTTGTCTATTTATTTACTTTGTTGTGTAAAAGCTATAAAGATTAGGACAAAG |
| >Gm08_1081572 | ATAGTCAGTGAAATGCAATGGCTATTTTGCTTGGAAAAAGGCTCCAAAATAAAATCTGGAGT<br>CTGCATCTAAGTTGAGAGATCGGGACACAACCATACCTGCATCATCTTTGGAGAAACACAT |

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| 6 | TGGTGGCTTGATCCTGAAAACATTGCCATGAAGTCCTCCTTTCCCAACTAGCACAC[T/G]AA<br>GCTCTTCAATGAATATACAAATAATTCGTTAGACGGTTTGGAAGTTATTTTTGGAAAAGAAG<br>GCTTCGGATGCATAAAATAAAATGGTTCCTTGTCTAACCTCTGAGTTTTTCAAACACGACAG<br>CAGTTTCAGCCTTTGCGGGTGTCTTGTTGTCTCGGTCAGTGACCAACTCTATGC |
| >Gm08_<br>14760513 | CTGATCGAATTATAGTTTCCTCCAAAAACAAAATTGAGTCATCGTCATGTTTTTTTAATGAAT<br>ATGAGTCATCGTCATTTAAGCCTCATGATGAATAGCAGGAAGATTTTGACCAAAACCAAGA<br>GTAGTTGGATGTAGATTATAGATCGAGTTCCTCATCTCATAATGAGCACACGAAA[C/G]GCA<br>GGTGCCTAATAGCTTCAGAAAGAGGAAATGAGGACCCCACACTACCGATGAAGGCACCGT<br>TTTTAACTGTATATCTGTATAAAGTAAAATCTGGTCTTTGAAAATGAATGTAATCTATTGTGT<br>ATTTTTGTGTTTTAATTTGATATAATTAAGAGAATAAAATTACCTATTCTTAAT |
| >Gm08_<br>18971181 | CTAGAACACCAAACTGAGGAGAAATTTAAATGTCATAATAAGAAACATGTAACTACACAAGC<br>ACAAATAATGGAAAAATGCACGGTAAAACTACATATATAGGCATGGTTGAACTTACTTGTTA<br>AATGACACTTTCATTGGTTTTCCTGATCCAGTCTTTGTGTGCAGTATTTTGCTCC[A/G]CTTC<br>TTTCTTAGTCTGTCTTCCAACTGTGAATATACCAAGCTCATTTGATTTACACACAAATTATAT<br>CCCTCAGTATCAAAATCCAAAGTTGCTACTCTTTAATTTTCAACAACTCGAAATGTAACAAAC<br>ACCACACCCAGAAACAAAATACCCTCCCCCCAGGAAGAAGAAGATACAGT |
| >Gm08_<br>27933899 | ACGAGGAGACCACCTTAAAATAAAAATTCATAGTGATTAGATTCGTGAAGTTCTGACTAGAC<br>TCATACTAGTTAAATTCGGTATATTAAGCAATGATTGAAAGATATAGGATTCAAACAAGGCC<br>ATCAAAGGCATATAATCTTAAAATAACTTGGATAACGATAAGTTTCAACTTTACG[A/G]ACCC<br>AAAAAAAAAACTAACATAACATTGAAGATTTCAACACATAAGCCAGTGTTGCATCGGCTTGT<br>TAAATTGGAAAAGGACGAGCATAATTCTAGCTCATCTCTTCTCCCTCACAAACACCTACAAG<br>AATTGTAGCAAAGAAAAAGAACACAAAGTTACAAGATGATAAAAATAAGATG |
| >Gm08_<br>37207618 | AATAATAACAACAAACTTTCAGTTTCAACGGCTAGTTCCATTTCGAAAACAAGATAACACTA<br>AGTACCCTTTTTGTTTTTTTATCTCACTTGAAAAAGCGGTTGGTGCACTATAACGGTAACTT<br>GCGATTTATTTCTCTTTCCGATTTGCATTTCACCATCTTCACTCACCAAATCACT[C/G]TAACA<br>CAACACTACTTTCTTCTGCTCTTCAAGCCAGGTTAGTCAGTTTATGGATTCCTCCTTTTTTAT<br>TTTGAAACTAGTTTCCCTTAAAATCTTGGAAGTATTGACAAGTTTTTCTATGATTTTGATCTTT<br>CTGCTTTGCCCAAAACCAATGATTGCATGTAATTTGATGAATCGAAAG |
| >Gm08_<br>40283689 | CCTAATTAACACAAACAAATAAAATAATTTTTTTAGCTTCGGTCCAAAAGAACCGGCTACAG<br>AACTAATTATTGGTCTAGGACTTAATTACACTTAAAGCTTCTCACCTCTTCCTAAGAGTGTAT<br>TTTGCGGGGATCGAATCCCCGTGTGTTAACTAAACTACACTCATTCATACAAAT[G/C]ATTTT<br>TTTTTACTACTTTAGTATTAACAAGTGAACATTTTTATGTACCACGGCATTGCTGGTGGACAC<br>GCCCTTAGCGGAATCGTCCTCCTCGGAGTCGCGCCGCTTTCTGCTGTTACTGGGTCCGAG<br>TCCGTGGCTCGGCCCGGTGGTGAAATCCCCAAACTGCCCTCCTGGCCCGTGA |
| >Gm08_<br>43073940 | AGGGAGATTTTGCATATCGATTATTATTTGTTTTTTTGTAGAGATATGAACTTTATTATTACC<br>AATTCCATCGCGTCAATTACAAAGGTAAATGAATACAATACAGTTCATAACATCTGTGCATT<br>AATGAATACAGTCTGTATGTATACATAGATAGACAGAGGAGAGAGAGAGAGAGA[C/T]GGA<br>GGGAGGGAGGAAGGGAGAGATTACAACTTCTTGCTATTATTGTTTCTTTGCATACTCCCTC<br>GGTCCAAATATTGTGGATCCAATTCTTACATTAGTACTACCCATCTCAATCTGAAAACAAAA<br>AAATATTTTTGAACAGTTGCATGTATACAGTTGATCAAGAGTAAAAGAACATCA |
| >Gm09_<br>843867 | TCTGCTGTTTAATTAATGTTAGTTTCATGTTGAATTGATGCATATATGATGGCTGAGTTGATT<br>TCTTTCTCTTTCACAGTTGTTGGGAGATATGTTACTTGATCGTTCAAATTCAGCCGTAATGA<br>CAAGATATGTGAGCTCAAGAGACAACTTGAGGATTTTAATGAATCTTCTAAGAG[C/T]ATGG<br>GTCCTTTACATAAAACTTAAATGACATGTCTTATTACTTACCTTCTTGCCTTGCTTGTGTGCT<br>GCCTGTCTTCCAATCCTTATGTATCCTTGTTATATTATTCCCGTCTTTATTATTTTGCCGTGA<br>AAGTGCATCAGTTCAGTCAAAATATATAGCTCTTCACCCTGCTGCTATTG |
| >Gm09_<br>3344868 | AAAAAATTGCCAAATACGACACCAAGGATCGACACGTTAGTTTATAATTAAACATCACGATC<br>ATGGATGATCAACCACACCACAGTGAACTTGTTCAGCTAACTAAGTAGCATTTATGAGTAAG<br>AATTGTAGCCTGTGTGTGGCTATAAATACCATCCCTCCCCATGCCATAAATCGCA[G/T]CAC<br>AAACTATATACTAATCTCCATCTAATAGTGTTAATTTGTCTTTCTCTATCTCTATCGGTCATG<br>GGTGCTTTTGCTTTTGATGAGGAAAACTCCTCCACCGTGGCTCCGGCAACACTCTACAAAG<br>CTCTGACAAAAGATGCTGACACTATCATCCCAAAGATTATTGGGGCCATCCAA |
| >Gm09_<br>6980316 | TTTATTGCTCATGCTCTTGTCACTATTGAAGGTCCATATATTTGGTCTGAGTAGAAGTGGGA<br>AATGTCTTATTATCATAATATGCTAAATAGGGTTGACATGCTGTTTACTTGTTAATTTATTTC<br>CTTCATGAAATGTCATTTTTACATAATTGTCTGCTCTATGGAACAAAATAAAAA[T/C]AGCGA<br>GGATCTGAACCCCCAAAGTATTCAAAGCAAGTGAAGGATGAGGAGGAGGGATTGGACGAA<br>GAAGACGATGACGAGCATGGGGAGACCTTGTGTGGAGCATGTGGGGAGAACTATGCATCT |

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| | GATGAGTTCTGGATTTGTTGCGACATATGTGAGAAGTGGTTTCATGGCAAGTGTG |
| >Gm09_25485073 | TGAAACGGCAGCCTCCATTGTGTCGTTTAAGGTCGACTCCGACGTCGTTTCGCTCGACGG<br>AAGAGACTTCTTGGAAACAGATGCTGAAGTCGGTGATGATGGGAAGCTTCATGTCACCGTT<br>AGAAAATCGAACGCTTCACGGAGGTCGTTTATGATGACGCCGAGGCCGTCTAATCTCA[G/A<br>]CGGGGCGGAGATTTACAGCCTCAGCTCGTCTCGTAACCCAACGCCACGTGGCTCCAACTT<br>TAACCATGCGGATTTTTTTTCCATGATGGGGTACCAGCCTCGCCACTCGAATTTCACCGCC<br>AATGATTTGTTCTCTTCGCGTGGACCCACTCCGAGACCTTCGAATTTCGAAGAAAGCTC |
| >Gm09_38777811 | TTGGGGGTAAGGATGAGGGTTAGGGTCGTAATAAGGATTAGGATTGGGATAAGGGTTGGG<br>GTTGGGGTTAGGGTTAGGGTTAGGGTTAGGGTTAGGGTTGGAGGGAAGGGGCGAGTAAG<br>AGACGAACTCGTCCTTCCCGATCATCTTCGAAGATTGTATGGTACTTTCAGGAGACAAAC[C<br>/T]AGTAAAACAAAATTATACAAACACCATTATTAATCCTTGCTTTTGCTTAACTTGACACTCA<br>ACAATTGTGGCATGCTTAATGTCTACAATTATGTTTTGGCATTTTTTAATTGGTGACTACTGT<br>AAAAAATATGGTGACTCCTATACTCCATGACCATCGATCCCTCCACTGCTTGCATT |
| >Gm09_39791349 | AAAGGTGGAGAACACGAAGTTGTGTTCAGACTACTTTGCTCTAATAATGTAGCTGGGAGCG<br>TGATTGGCAAAAGAGGGGCTATAGTCAGAGCTCTGGAAAGTAAAACAGGTGCTTCTATTAT<br>CTTTGCAGCTCCTTTAAGCGAGCATGCCGAGCGCATTGTCACCATTTCTGCTATCGA[A/G]G<br>TCAGTCATATGAGAATGTTCCCTATGCCACAACTAACTCAGGCTTATAGAATTTTCAGTGTT<br>TTTTGTGTCCTCTTTCATGTGCATATGTTCATGCAACAACGCGTAGTCATGCATTTGGTAGA<br>TCTGTTTGAAAACACATTTTGGAATTTCATAATTTTTATAGTTGATTTAACACTG |
| >Gm09_44762001 | GATTGATATTAAGAAAGGATGCACTTTCTTCGGTCCAGTGCCATATACATCATGTTATTACG<br>TAGCATGTCACCATGCTAATAAATACTGAACCGGTTAATTAAGTATTACCTCAATTTTTTTCA<br>GCTCAGCTTCAAGAGTTGCCTTCTTGCTGTTTTCCCAAGCAGCAATAGCTGAGA[G/C]TTGT<br>TTTTGAGCTCTGTTATCAGATCAAATAATTTCTAGAGTTTAGAGATGAACATACATTGGAAAT<br>TAGTAAGGATCAAATAATCTATGAAATGGCATATCATCATCATCATGGCCTACTAATCACAA<br>AAATCACAATATCTTAAGACTAAGGGAGGCATGTAAACTATTTTTTTCTTT |
| >Gm09_46356061 | CGAGGACTCGTTCGTGCAGTCGGCGAAGCCGGCAGAGTTCGCGGCTGAGATCGGCCGGA<br>CGCTGAGACCGGGAGGTTTCGCGGTGTTCCATTTCGCGATCCCTAAAGATACGTATAGTTT<br>CAATTCGTTCCTTGATTTGTTCAATTGTTTCAAAGTAGTTAAGTTGCATGGCTTGGAAG[G/T]<br>CTTTGATTCTTCGATGCCGTATATACGTGAAATTGTTTTGAAGAAAGAGTGTGGTGATGGTG<br>CTGGGAAATTCGATTTCGATGATTCAAATGGAAAGTGTTATGTTCCTGGTTATAAGCATGAT<br>TTGGTTAAGATAGCTGAGCCATTGATTGAGGAGGAGCCATTGAAGCCTTGGATTAC |
| >Gm10_2447728 | GAGACTCTTTAAATTAAATTTTCTGTATTTTGTGTTATATGTTACTAGTTCTTTAAATTAGCCA<br>GATGGAGTTTATGTGTATCTAAATGCAGGGATGCTAATGGAATAAAATGGCCACTTGTATTG<br>TTAGCTATCTCTTATGGTAGCAGAATAAGACGTAAACTGGTTCTTTGCTCCAA[C/T]TCTAAA<br>TTCCTTAAATCATGAATACTTACATAAGAAAAGAAAAAAGAAAAAAATAAAATAACTATCATT<br>ATAAGTTAAAAGTAGAACTTTTTAATATTAGTTTTTTAAAAATGGTTTTTACTTTATGCATATT<br>TTAATTTTAGTTTATAAAAAAAATATTTTTTTTTATTTCTTTGTCATA |
| >Gm10_4227027 | AAAATGCACAAGTACTACATTTGTTTTTGAAACCTGCACTGCACATTGCACAACAAGGATTC<br>ATCTTTTTACCTTTTCATTCGAAAACAACCTCAAACTCTTTTGGGGTCTGATCTGAAGAGCA<br>GAGATTATGGGGTCTTGCTATGGTGAAAGTGCAGATAACATGCAAGTGATAGCTG[G/T]TGA<br>TAAGGACCACATATGGAGGTGTGTTTTTGTTCTCTCCCTCTCTCTCTCTCTCTCTCTCTCTC<br>TCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTAATTCATATTGCATTGTGAA<br>ATGGGGCACTTAGTGGCAACAAAAATGGAATGACATTGTTCAATTAATGTGT |
| >Gm10_4303584 | CCCATATCAATGTTATTGCTAGCACCATTTGAGTTTTGGTTAGGAGGATTGCCGCAAGAATG<br>AGATTGAATATCACGAGATGAATCTTTCTTTGTAACTTCTAAGCTATTATTATAAGGAGAATT<br>GCTTCCAACACATCCAGTGGGAGATTTCTTAGTGTTAGAGGCTGCATTGTACCT[T/C]CAGC<br>AAAAGACTTTTAACAATTAAACAGTTATCCATCTTAAAATTAATTATGAACAATACAAAACAA<br>TAACACTAAATCATCATACCTTGAGAAAGCAGACTGATCAGAACGTCTTAAAACATTCCGGT<br>CATCCTGAATTGTAATATCAGCATCTTCAACTCCTCTAAGCCTCTTTAAAC |
| >Gm10_6625287 | TGAGAGTTGAACCATGGGGTCTGAGCGAAGGCACAGGTTTCCTGGTTTCTAGACGAGGGG<br>GTATTGCGTGAGGCTGGTTTCACAGAGCAGCGATCACCCCTGGCTCTTGACAGTGGAGGG<br>ATTACAGGTTGCTTCACTTCCAGCCCATATAAACCTGATGATCCTAGCTCTTGAACCAT[G/A]<br>ACTTTTTTTTTTGTTCCTGGAACCAAGTTAAACTTTGGAATTTTTCTTCCTTGAAAATTTCTTA<br>GTAGGTGAAGGCACAGCTTCATAAGTGAATGTTGCATGACACACAAAAACAATAGTTAAAC<br>TAGCTTTGCTTAATGAAAGGTTAGTGTCATATGCTCCACAACCTCCCTCATTTCA |
| >Gm10_3337484 | ACAATATAAAGGATCAAACATATAAGAGCAACTTGCAAGTTATAACCAAAAATGAACTGTAT<br>CCATGTTTGCAGTTGTAACCAAGACAATGAGACAAAAAGATTACATGCAGCCACCAATTAG |

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| 6 | TCAAGGCTTGATTAATACAAATTTTGTTGCATACATCTTGAGCTCCTTAGAAGGAG[C/T]ATC<br>AAATAATAAAGAACATACCTGTCTCTACATCTAAAGATAAGACAGCATTTTATCCTTTCTTCC<br>TTCAAATACATGAATGATGTCATCACTCCTTGAATGGAGTCATAATTCCTCAACAATCAACT<br>ACACCACTACTGTCATAAAAGTTTAGAATTAGTTCAGATAAGCATCAGAGCT |
| >Gm10_3992953 2 | AAGATTGTCATTGACATGGTTATAAGTAAGATAATCCTGGACATAGTATCCAGTAGTCGCAC<br>TTCCGTCTCCGTAAGTTATGCTGTAGGGGCATGGAATTTCAGACTTGCAACCAGGAATTGG<br>ACCGTCATAAGTGGCAGAGCAAAACTCTTGGTCACAAGAAATCAACTCTGAAGTTT[A/G]CG<br>AGCCCTTCGGGTCATAAAGAGTCAAATCTATCTGTTGCAACAACGACAACGACAAAAACAC<br>GATGGCGATTCAGAAGCTGAATTGAAGCTGTTAAGTGTTACAAAACATGGATACATACACC<br>AAGATCGCTTTTCCTGGGACATCTGGAGCACTTAACACAATTCACCCACAGAATGT |
| >Gm10_4148528 3 | AACCTCAGTCAAAGTGCTTCAAATGAGCAGTGACATAAGATATATAATATTTGGTTGCTCTA<br>ACTTTTGGATGACTTGGACATTTCTTGGTAATAGTAATTGGTGATTTAACAAGTGTGTTTTTC<br>TCCATTCTTTTAAAACCCTTTCTGATATGTGAATTTTGAGCTTTTTCTTCTTTC[G/C]GCACCG<br>ATCTGAGACTGAACCAACCAAGGTATGCTACTCTTCCCAACATAATGAAAGCAAAGTCGAA<br>ACCCATAAAAAAATTCACTCCGGAGGAGTTGAATGTAGAAATCAAATCTGATTTGGAGATAG<br>TTCAAGTCACAGAACCTCCCAAGAGAAAAGCAGGGGTTATTCTTTCTTCTG |
| >Gm10_4264222 1 | ACAATGCTTGCATTCTAGTTGATTTGTTTTACCGATGAGCTTTATTTGTACTCCTCCTTTCTT<br>CTTCCTGATAAAGTTTCACTTTCTAGCCGACTAATTTAATCTGAATGGGGTGGTGGGCACTA<br>GGTACCTGGCTAAGATACTTGCTCCAGAAGGTTCAAAAGAAGTGGCAGTTGGAC[G/T]CTCT<br>ATTGCAATAACAGTAAGTGTGAAAATGCTGTGCAATTTTGTAACTTTCTTCCAATACAATATG<br>AAATTTGTCAGGCTGAGGATTGAGGTCTAACAATTTATGCATCTTCTTTTGATATACAAACTA<br>AGACATCTGATAATATGATATATATTTATTGGTTGGAATACCAAATTTCT |
| >Gm10_4264222 2 | CAATGCTTGCATTCTAGTTGATTTGTTTTACCGATGAGCTTTATTTGTACTCCTCCTTTCTTC<br>TTCCTGATAAAGTTTCACTTTCTAGCCGACTAATTTAATCTGAATGGGGTGGTGGGCACTAG<br>GTACCTGGCTAAGATACTTGCTCCAGAAGGTTCAAAAGAAGTGGCAGTTGGACA[T/A]TCTA<br>TTGCAATAACAGTAAGTGTGAAAATGCTGTGCAATTTTGTAACTTTCTTCCAATACAATATGA<br>AATTTGTCAGGCTGAGGATTGAGGTCTAACAATTTATGCATCTTCTTTTGATATACAAACTAA<br>GACATCTGATAATATGATATATATTTATTGGTTGGAATACCAAATTTCTA |
| >Gm10_4389694 7 | TCTCGTAGTTTCAGGTTACAATATCAAATCACACACACACAAAAAAAGACATTTATAGGGTG<br>CAGACTTTTTCTTCAGGCAAATATGACGTGGAAACTAATTGCTTTGGAATTTGTGTCCAATC<br>AGCTTTCAAGAGCCTCTCCAGAAAAATACTGTTTGTGAACCATTCTCCTATAATC[T/G]GCAT<br>GACATTTTCCATGCATATGCAATTCAACAATTAACAAAAATCTACATTAGTCTACACTACAAG<br>AGCATTACACATATTGAATAAGGATGCAGATAAGTTAAGAAATAGTACGCAGTGTAAATCAT<br>TTTAAGTGTAATAAGTTTATGACAGAAATCAATGTTGGCAGTTTAAAAAAT |
| >Gm10_4479749 3 | AATCTCAAGATTCGTGCATAACAAGGTTTACTGATCGAATACCAAACATGCACATAGGTTTG<br>ATATGATTTTTCTGACTATTTACTTTTGAGATGAAAAGAAAGGAAGGGCACAAATTAACTGA<br>TTGATATTCTTGTAGAGAATCTGAATATAAGAGAGGATGCATGGATGAAATAAAT[C/G]ACCA<br>GAGAAACAGCATCGCGTGCGGCTAGAACAACGAGGTCAGCGCAAGAGACGACCCTTCCAC<br>ACTGCTTGTGAACAAGAGATCGAAGATTTTCAATGGTCTGCAAAGCCTCTGGCCTTATCCC<br>TATGTTTGCCGGTTGATCCTTTTCATTTGGACTTCCATCCAACAATATCGACCCA |
| >Gm10_4479749 4 | ATCTCAAGATTCGTGCATAACAAGGTTTACTGATCGAATACCAAACATGCACATAGGTTTGA<br>TATGATTTTTCTGACTATTTACTTTTGAGATGAAAAGAAAGGAAGGGCACAAATTAACTGATT<br>GATATTCTTGTAGAGAATCTGAATATAAGAGAGGATGCATGGATGAAATAAATT[A/G]CCAG<br>AGAAACAGCATCGCGTGCGGCTAGAACAACGAGGTCAGCGCAAGAGACGACCCTTCCACA<br>CTGCTTGTGAACAAGAGATCGAAGATTTTCAATGGTCTGCAAAGCCTCTGGCCTTATCCCT<br>ATGTTTGCCGGTTGATCCTTTTCATTTGGACTTCCATCCAACAATATCGACCCAT |
| >Gm10_5036829 9 | GATGAGTTAGGGTATTCAGGTTTTCGACTCACCAAGAGTCTTGTGAAGAGTGCTGCTCAAG<br>CCTTGACGGTGAATCTTCAAACTATGGCGCCCAAGATTCTGCCACTGTGGGAAATGGTGAG<br>GTTCTTTTTTGCATCTATAAGGTATAGTGGGATGAAGAAGAGGGAGCTGCTACCCTT[A/G]C<br>TCACTGGGATGGTTCTTGGAAAGGGTAATAAGAAGAAGACAAAGTTTAATGTGTTGGGAGG<br>GGGTTTGAATTTCAAGGCTGGGATAGAGCACTTTTGTGTGCACCCTGGTGGGAGGGCAGT<br>TATTGATGGGGTTGGTAAGGGTTTAAGGCTGAATGAATATGACCTTGAGCCTGCAAGG |
| >Gm11_1932902 | GGCCACTGATGTTGAGCATGTACAATCAGCTGTCAACTTCGCCTAGAATGAAGGGTATTGT<br>TATTTGTGATAGTTCTGTAGGTAAATTGTTTCTGGGTGATAAGTATTCTCGGTTCAAATATTT<br>TATTGTACTCTTTTAAGATGTAGCTAGTTACTCGAGTCCAAAATTTATCTTTTTC[C/T]GTTTT<br>TTTTTTTTTTTTTTTTTTTGCATTTTAGTGAATGGAAATTAGTCTTTGAATAAAAAAAGAAGTTG<br>CAATAGCTTTTATTCAGGCCGGTTATTATATGTATGAATCACATGATGTGGTTGGACTCAAT |

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| | TAAAAATCAAATTTTTAGGATTATTTATCATAAAATCTCTTTTAATAGT |
| >Gm11_2152220 | CCCAACGTGCCTGCTACGTCGGTTCCTCCTATCTATGCTGCTCTATTGACCCCTCAAGGGA GATTCCTCTACGACCTCTTTCTCTATAAGCCTCCCACGTGCCACACCAAGCTCGATCACAC CGGCACTGGCCCTGATTCCAAACCACACGAACCCTTTCATATGTTTGCTGACGTCGA[G/T]G CTTCTGTGTTGGATGAATTGTTGCAAACCCTCAACAAGTCAGTTTAGCTTCTTCTTCTTTCTA TGGAGTTCCATTTATTTGCTCTGTATCATTGATTCATTTCTATCAGTTGTTGAGATTTGAGAA ACATACATGGCATCAGCGAGAGAGTTCCATCACTTCCCATTACCAATTAGCTT |
| >Gm11_2296897 | TACAAGAAAGTGGTTGGAAGCCTAGGTGGTTCCGAAGAGAAGGTGAAAATGGAACATTTC GATACGTTGGTGGGTATTGGGAAGCGAGAGAGCATGGAAGATGGGACGGATGCCCTAATA CATTTGGTGAATTTAATGAAGACTCTACCGATCCGTTAGGTGCATCTTAATTTGGTTCA[T/C] GTAACCTTACATATTTTCCAGATAGAGCTGCTTGATTAAGTTAAAGTTGAACTACATACGGA TATTTCATTAAAAAAAAACACAAATGAGTTTGCTGTGTCTGAGACACCTTTGTAGGTCTTGA GCTGTAACTCAGTACGTTCGTAAATGATAAAAATCGTAAAACAATGACGTACTCAT |
| >Gm11_8009572 | CCATTGCCTCCTGAAAAACCTCCTCTGTTTCTAAACCCTTGACTTGATCAGAGCCCGCTACA CTCTCCTCAGAAACCCCTTCACCACCCACTACTCTCTTGCTCTCTCCCTCGCCATTGGCAC CAAAACCATCAGCCTCATAATCCATAACAAAATCCTCGGATGTCACTCAAAAACCC[G/A]AG ATTCAACAAAGGGGGCGGGGGAGGGGAATCAGAAAGCCATATAACCGACATAATGATAAT GATAAGAAAAAACGGAGGCGGAGGAACGAAACATTAAGAATTACTATTCACAAAATAAGAA TTGCAAGTTTCAACAGCAATAAAGAATAAATTAAAATGGATGGCCGATAGGAATTAA |
| >Gm11_11628041 | CACCGTTTGATTCCTCTTCGCGATCATGGATCTGATCTGGATCACGAAATCCGGTATTCGA AACCTGCGTTTTTGTTTCTAATTTACGCTTCTTTATTTTTTTGATTTTGAAAATTTTCTTAGGG CTTGATTAGGCTTCCTGTTTCTCTAGCTGTGAAATGATTGGATCTTCTTCTTGC[C/T]CTTGA AGGAAGTCGCATTTGGTCTTTCCTTGAAAATTGATCTCTCAATTCATTCATTCTATTATTACA CTTTTTTTTTGCTTAAATTTCCTATACAAACAACGGCTGCATTTCAGCAATTTCTATTATCAC ATTGCGTTCGTTTCTGTTAATCACGTTTTATTAGTTTATGAGCTGCCGC |
| >Gm11_11628062 | GATCATGGATCTGATCTGGATCACGAAATCCGGTATTCGAAACCTGCGTTTTTGTTTCTAAT TTACGCTTCTTTATTTTTTTGATTTTGAAAATTTTCTTAGGGCTTGATTAGGCTTCCTGTTTCT CTAGCTGTGAAATGATTGGATCTTCTTCTTGCTCTTGAAGGAAGTCGCATTTG[A/G]TCTTTC CTTGAAAATTGATCTCTCAATTCATTCATTCTATTATTACACTTTTTTTTTGCTTAAATTTCCT ATACAAACAACGGCTGCATTTCAGCAATTTCTATTATCACATTGCGTTCGTTTCTGTTAATCA CGTTTTATTAGTTTATGAGCTGCCGCATTTATTATAAAGTAATGATG |
| >Gm11_17315140 | CATCAAAATGATCATACATCTCATATTTTAAAAAAAAAACTACAACCTTTTCACTATTATTGTC TTATGTCATATTACGTTCCATATCATTATATACATGCAATATAACTAAATAAAAAAAGAAATC CTATTATCAAGCATATAAACTGTTCCATTCATGGGGATAAAACAAACCATAC[G/C]TACCAAG TTTAGGTAACATTGCACCAATAGTATCGGGGTTTACAGGAATTGGTGGCTCATACATGTTTT GACTTCGGAATGAATGAAAAAGTGGAGATGAAATAGCTGATTTTTTGGGATCCAACAAAGA AATACACACTGAAAGAGAGTTGACAAGGCTAGACATTGATTGTGAATCTT |
| >Gm11_18487772 | GTTGAAAGTTGCCACAAGTTGAGTTTTGCTTCTTGTAGTAAGGATCCTGATGACTTCTTCAC TGTTGCCTTTCTTCTCCTTGACAGATTCATGAAGAACATTAGCTTCAGTTTGTGAAAATTTTA CATTGATCTCATCACCCTCATACCTATATGAGGTCACCAATCCAACCAAAAGCT[G/T]CTCAA GATCAAACACAATCACCATTAGCACTCCTCAAAGTTCTCATCAATAAACACCATTCAGTTGC TACAAAAACACTAATTCTTAATAATACCTATATCTATATGTATTATTAATCAAAACATTAAAAT AACTGGTGATTTTAACACAAATTTTATCATTATTTCAATGCACCCTTTA |
| >Gm11_18487773 | TTGAAAGTTGCCACAAGTTGAGTTTTGCTTCTTGTAGTAAGGATCCTGATGACTTCTTCACT GTTGCCTTTCTTCTCCTTGACAGATTCATGAAGAACATTAGCTTCAGTTTGTGAAAATTTTAC ATTGATCTCATCACCCTCATACCTATATGAGGTCACCAATCCAACCAAAAGCTG[T/A]TCAAG ATCAAACACAATCACCATTAGCACTCCTCAAAGTTCTCATCAATAAACACCATTCAGTTGCT ACAAAAACACTAATTCTTAATAATACCTATATCTATATGTATTATTAATCAAAACATTAAAATA ACTGGTGATTTTAACACAAATTTTATCATTATTTCAATGCACCCTTTAC |
| >Gm11_24415494 | CAAGAGCAGGGCCACTGAAATAAAGGCTGAGTCGGAGAAATAGCAAGGTCAAGGGTGCTG GAGAAGGGCGGACGCAGAAGATCACCACCGCCACCAGTGACGGTCATCACTGGGTGGTC ACCAGAAGAACACACTGCAGGATGTGCGACCTGTGGCCCACACCTCCTATTTGTTCAGGG[ T/G]AGGCGGCGTGAACTCTGACTTGATCCGGGTATTCAATCACCCCCACAAAGGTTAAGGA GTCAACTGAACATCTCAGCCATTGGCGGGAATTTCACCCGCATCCGACCCCCAATTCTTGT TCACCCATGGAGTAGGTTGCTGCTTGCAGCTTGTGCTTATTGTTTGAGAAAAGATGACTTG |
| >Gm11_2655975 | TCACCTTGTTTTATAATGCTAACTATTTCTATGTCTGACTAGGGTAAAGAACAAACTAAATTA GCTCAGAAAGCAGACACTAAGGCCAGCCATGACATATTTGTAGCTAGGTTGGTGGATTTCC |

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| 8 | CCTTTTCACATTCTTGTGTACTATTGCTTGTATTAAGCTATTGTTAGTGGCATAT[C/G]CAGA<br>AACAAAGGTATAGAAAATGTGATAACTATTGACTTACATGGGCAGCACGTAAAACAAGCAAT<br>GAGAATGCTGAAACTTCACCTTCTGTTTGGATCATATGTTCCCTGTAAGCATTTTTGAGGAT<br>CTAGGTTCTCACATTTTCTTGTGACACTAAAACTGCATTGCATTTTCATTTA |
| >Gm11_<br>30156178 | CTTGCAGAGGATGAAAATGAGACGAAACATTTGGAGGAAATGGAAGGAGCAAAGAGTCAT<br>CTCCATTTTTTTGAAATGGATCTTCTTGACATCGACTCCATTGCCGCTGCCATAAAGGGTTG<br>TTCCGGCGTAATCCACCTTGCATGTCCTAACATCATTGGTCAAGTCGAAGATCCCGA[A/G]G<br>TTAAAAATATTTAAAATCACTTAACACACTCCAATATTTACATAAATGGCTTAATTACTAATGT<br>ACTTCATAAATCCACAGAATCTTTATCTCTTAAACATTACTCTTTTTAATCTTTACCCACACAC<br>TCTTTTTCTTCTTCATCCATCAAAAGTTATTGATACAATTAATTTGATATT |
| >Gm11_<br>35282159 | TAATCACTAGGGTTTATTCATCCATCCATGGAGCTAACCGTTTTCTCTCTCTTCTTCTTCTTC<br>TTCACCTTCCACCTTCCCTCCTGCTTCTCAGGTACCTCGTTGATTTCATTCTCCGATTTGCG<br>ATTTCTTCACAATTTTAACTGTCATTTCTCACTGTTCGCGTTTCCTTTTCGCAG[A/G]ACAATC<br>GAGCTCCATGGAATCAGTGCCTGATCTTCAGAACACTATGTACGCTTCCATCGACGGTTAT<br>CCTTGCGTGCGCCTGATGAATCTCTCTGGCACCATCGGTTGTTCAAGTGAGTCTCCAACCT<br>CTCGCATTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT |
| >Gm11_<br>37298431 | CGTGCTCGTCTCGGCGGGGAGCCCCGACACCACCCGCACCTCGCGGACGGCGCCGACG<br>CGAATGCCGTCGCCGGTGATGACGTGGCAGCTCCTCACGAAGTTCTTGTATCCCTGCGGG<br>TTGTCGAAGCGCCGCACCACCGCCCAAACGGCGGAGACGGGGGCGTTGATGTGCTGCGT<br>CA[C/G]GATGGAGCAGCACTGGTTGGGGTCCACCACGTGCGCGTGGTGGAGCGCCACCGT<br>GTCGGGGGCCGCGATTCCTCTGCCGGAAGAGAGAGAGGGAACCACGAGGCGACGCGCC<br>GCCGTGGAAGAGGGCGGCGCTTGAGGCTGCTTCGGACAGTTTACGCCGTTGGCGATGGC<br>GACAGTGGT |
| >Gm11_<br>37298433 | TGCTCGTCTCGGCGGGGAGCCCCGACACCACCCGCACCTCGCGGACGGCGCCGACGCG<br>AATGCCGTCGCCGGTGATGACGTGGCAGCTCCTCACGAAGTTCTTGTATCCCTGCGGGTT<br>GTCGAAGCGCCGCACCACCGCCCAAACGGCGGAGACGGGGGCGTTGATGTGCTGCGTCA<br>CG[G/C]TGGAGCAGCACTGGTTGGGGTCCACCACGTGCGCGTGGTGGAGCGCCACCGTGT<br>CGGGGGCCGCGATTCCTCTGCCGGAAGAGAGAGAGGGAACCACGAGGCGACGCGCCGC<br>CGTGGAAGAGGGCGGCGCTTGAGGCTGCTTCGGACAGTTTACGCCGTTGGCGATGGCGA<br>CAGTGGTGG |
| >Gm12_<br>4386073 | AAAAGCATGCTTCCAGCTCTATGACAATAAGAAAGAAGCCCAAATAATGCAGTCAGAAAAA<br>ATTATAAACCTGAACAACGTAGTTGCCATACTGATCCTGAGCTAACATGCTAACTGCTCCTA<br>AAATTTCATCCATAACTTTCTGTTGTGTTGTAGGGTCTTTGCAGTGTTCCAGCACT[C/T]GCT<br>GTCGCGTAGAACGTATTTTATATGACAAATGATCTAAGGTACATTATAAGAGTAACATAAGC<br>AGTGAAGAGAACTTACCTGTATCACCCGGCAACCATATGGATGGGTTGAGAGTGTCACAAC<br>TTGATCAAAAAATGTTGACACAATAAAGTGGATTGCATCTTCAGGGACACATTC |
| >Gm12_<br>16133337 | TGTTGCTGCAGCTTCTCCTGCCCCTCAACAGCCTGCTATTAGTAGCACTCCACCACCACCC<br>CGACCACCAGCTGGTGCCAAACCTGGCCCACCCCTACCACTACTGCCAGCACTAGCTGGT<br>GCCAGACCTGGTCCTCCTCCACCACCTCCAGCCTCAGTTGGTGCCAAACCTGGTCCTC[G/T<br>]ACCACCACCCCCAGGACCAGCTGGTGCCAAACCTGGTCCACCTCCTCCACCACCCCCAG<br>CTGGTGCCAAACCTGGTTCTCGTCCACCACCACCTCCTCCTATGAGTGGTGTGGCTCCTCC<br>TCGACCTCCGCCCCCGTTTGGTTCAAAGGTGCAACGTCCCTTAGCTAGTGGATCAAAAGC |
| >Gm12_<br>17533119 | GTCAAAGGGCACCAAGTGTGTCACAGCATTCTTCATTGCGTTCTGAAGCTCCACCTCGTCG<br>GTCTTGTCCGAGTCTATGCTCAACACCACGTTCTTTCTGCACACAAAGTTGAATTGGGGTG<br>CCTTGTTCTTGAATCCAGCCACCCTCAGCACATCACCAACTCTGTAACGATACAATC[T/C]T<br>GAGCACACAAAAAGCAAAAAATAAAAAATTGCCAATTGTCAATCACCAAACCCATGTCCAAT<br>TTTGTGGTATCTTAAGATAAAAAAAAAAAAAAACATGGTTTTAAAAAATAATCAGAGTTTTAG<br>CAGTAAAGTCAAGGATTTTGGAGTATCTGCTACCGTAATTGTGATCACATGGTA |
| >Gm12_<br>18823992 | TCAGCGACACTGTGATCTGATTCTCTCCCGGCTGCATCACCAACAAAAAAGGATCTACAAC<br>ATATAAAATGAATCTTTAACATTTTCATCATCCCCTCAAGAATAAAAAATGGTAATATTCTAA<br>ATGAAAGGAATAAAAAACTTAGCATCAATTGAACAATTGAAAGGAAGAAAAAATA[G/A]CTTA<br>TCCATATCAATGGCAATGCCAGAGTTGAAGTGTTGCTCCATAAGATGCCACATCCCTGGTT<br>TGGGTTTGCGAAAAGGATCATCTTCCTTTTTGTTTACTTTACCTGATTTACTACCTACCCCAC<br>AAGCTATAAAAACCTGTATAGATAAAATATAGATACTAGGTCAGCTTCTTGT |
| >Gm12_<br>24557321 | GAATGTGAACTTGGAAGAAGACTGTCAACTGAATAAAGCCCATCCAAGCTCTTTAACGTGT<br>TGCTGATCTTCATTATCTCCAATCCATTCATAGTGGCATTTGGGAAGTCTGCCACAGTATCT<br>GGTCCAACACTCACAGTCAAAGTGCTAGAGTCTGCTGAGGAATTGGCAACAAAGTC[C/T]TT |

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| | GTAGTACGGCACAGCCAAGTCATTAGTTATGGATGAGATGTCAAAGCTTTGAAGAGCTATG<br>TCAGAATTTACGAACACATTGAACACTAAAGTGTTGAGTGACTTGCTCATAATATCACAAAA<br>GTGTGCCCGGATGAAATAGGAGAAATTTGGATCCACATTGAAGACCCAAGTAATG |
| >Gm12_3800191 | ACACAACACAAACTATCTTAACAGGAATTATATTATGTACTTACCCTTTTTGGTGGTGAATAA<br>CCTGCTTCTGCCAAAGTGATTAACACGGTTCAAAGAGAGAAACAAAATAAGACCCAATTTA<br>GATTACGTGAACCCCATTACTGAAATCCCATCAAGTTTAGCTTTTTGGTGTGGCC[A/G]CAA<br>TGCAAGCAAACTCCTTTTCCAGGCTGTTGATTAGGCTGTCAATTACAGTGGGAAAAAAGTG<br>GACCCCACAAAGAGAAAATTAAAATTAAAAAAGTGTTAACAAAACTTCAAACTTGAAAGTTG<br>AAACTCCCATAGAACCAGCTGTTACTTTAAGATTCTGAGTTTTCTAAATTCGGA |
| >Gm12_3858885 | AGTGGAGCATTTTAATTAGATCAAGGAAAAATTCTATGCATTTTAAATTATGTCATACCTGGA<br>AAGTTTGATACAAAACCACCTCTATTTTTTATATCCTCATGTTCTGTGGTTGGCTCATGATCC<br>ACTGATAGTTGTTTGGCCACACCCTTCTTACATAAGACAGCCCGAGAATCCCC[G/C]TGTTG<br>GCTACTATTAACTTATGACATTGACTAATATTGCTGTAACTGCAGTTGAACCCCTCTACCTA<br>ATTCACCCGACATCTCTAAAATACTAGAATCAGTTTTACTGTATGCTCTCTTGACAGCATCT<br>GCAGGTTCTTTCCAGAAGTCAGGCTACACGAAACAAAAACATGATTGAACT |
| >Gm12_3949380 | ATCTGGTACACATTCCCAGGGTGGATCTTCGGATAATTGGTCTAGGCCTGGCTTTTCTGAG<br>CTGACAAGCACTTCCCTAAAAGAAAGATGGTCATTTGACAGTGAGTCGTTTGGTTTTAATTG<br>TGAAAGGCCGGTTAGATCCAGTAGTCGGTTTTCAAATTCTCCAGTTGATTTGCAAA[G/T]AT<br>GTGGTGTTTGCTCAAAACTTTTAACTGAGAAATCTTCTTGGGGAACCCAAAAGATAATTGCA<br>AGTAATGACCTTTCTGTAGTTTCTGTCCTTATCTGTGGACACGTTTATCATGCTGAATGCTT<br>GGAGAGTTTGACATCTGAAGTCAACAAGTATGATCCATCTTGCCCAGTTTGCAC |
| >Gm13_6166640 | TAAGGCCTTTGGAATCCGGGAAGCAAATATTAAAAGTTCCATGGCATCTTCCACAAAATGTT<br>CAGGCATGGTAGAAAATTCCATTGGGCAAGTTGGTGGTAGAGGCATCTTTAATCCACCCAC<br>CAAGCCAACCAACCAAACAATCATCAAGCGGTAGAAGGAAAGCGCATTTTGAATAA[C/T]TG<br>TGTTATCCTAAGGAAACAATGTGAAGCCAGTAATTCAAAATGAGAATATTAAAAATTTGAAA<br>CTTTATAAGCTAGAAAGAACGCTTAAAAGTAACAAGAACATGTCTAAATCAAATGATTGATG<br>AATCAAGTATCAAATTTCAGTGAACATTTAATTTAGAAGAACATAATCTTTGTA |
| >Gm13_6388118 | ACACGGACATGGCACAGAAAAGCTGAACATTACCTTTCAGTACATATATGGAACTAATTAAA<br>GCAATAAAAGAACATTACAGGATCATAATTACTCTAAAGTTAGTCAATATATAAAAGTGATAA<br>CCTGACTCTTCAGATATGGCTGCAATGTAACAACAAATTGGGAAGGGTTTGAAG[G/T]TGGT<br>GCACAGAGAGTTGGGTCCACAAGACAAAATGCATGCAAGACTAACACATATGGAAGTGCA<br>CCCACTTCCACTCCATCATTGTTCATTTCGTCAACCTGATTATTAACAAAAACTGTCATTTAT<br>ATATCAATGTAGCCAAGCATAGAAGTTAGTGGCATAAACAAAATACTACCATA |
| >Gm13_6635251 | TTATTAAGTATTTAATAAAGATAATAGAATAATTTGATATTTTAATTAACACAACTTTAAGAGA<br>AGGGACTGAAAGTAATATAAAAAAAGAAAGGATATTTGATGTAATTTAAGAAAAAACGTAAA<br>GAGTGTGAATGTAATTTATTCTTATAAATATCAGTTTTTCTTATAGCTGTTAC[T/C]TAGTGGG<br>TTAAGCCTCGCTTCTAACGTCACCGACTCAGTTGCTGTCAGCGAGTGAGTGAGTCGTTTCT<br>CTGCAGCAACAAGGTACGAAAAGAAAAAAAAAAAACTTCAGATCTCACTCCTTTCTTTTTTT<br>CCATTTCGATCCACACCATGTGCTACCTTATTTTCCTTTCTGGGTTTTAA |
| >Gm13_1101331 | TTCTAATTTGATGAAGTCACCTAAATTTGGAAGAAGTGTTTCAGTTTTCAAACCCTAGAATCT<br>GTCAATCTATAAGATCTGCTACAAGCAAGAACTAGCAGGCACAAAATATTGCTTGGTCCAT<br>GAATCAATTCGTGAAATTGATGTTAACGAGCTAGAGTGAAGCTAGATCTGAGAAT[G/A]ACC<br>TAACAAATATGGAACCTTTTCACCTCAAATCTACCATTCCTGTGAAGCAAAACCAAACAATG<br>AATTAGAAAATTAAAATCACAAGCTGAAAGGAATATACTTTAGGGGGGAGAAATGATTTCAC<br>ACCATCTGCTGCACTTGGAAAGGAAAATGACACAGAGTCATGAAATAAAAAAA |
| >Gm13_1558375 | CGATGTTAATAGTAAGACTAAATTTCTTGTGTATAGACAGTCGGATCTTTTGCATCTATTTTA<br>AAGTTTTGACTAGGGGCTACTTGTATTAGTGGGTCTTGTATTTTGTTTGCGGGGTATGCCCC<br>GTTCATTGTTGTATTATTTTAGGTTCAATATAATTTACATTTTTCTCAAAAAAA[C/T]TAAAAAG<br>AAAGAGCTCTCAGTCTGTCAATCCTTACTATGTCTAGAACTGGTAAGTTTCCCCATGTTGAG<br>TCAAATTAAGCCGCAGGCTCCACTCTTGGTGGTGCCCTTCCGTCAATTCCTTTATGTTTCAG<br>TCTTGCGACCATACTCCCCCTGGAACCCAAAGACTTTGATTTCTCATAA |
| >Gm13_2386133 | TGCAAGAGACAATAACATGACAAATAGTGTCAATGGAGAAAGAGACCGACACAAGCATAAT<br>TGGCTCTGATTTCGTGATCCTCCTTTCCCCCAAAATCCTTGGGAGAAAATAGAGAAAGAGA<br>AAACTTTACCAAAAAGAAAAAAAGGGGTGAGGAAAAGAGTGATACCCTATGACATGC[A/G]G<br>ACCACCATCATGAACAGCTTGGGAAACCAAACCCATTAAACCAATGCTTCCTCCTCCATAG<br>ACCAGATCAATGTTCCTTGAGACCTTCAGATACCATTAATAACAACATTAAACAACCTAGAA<br>AGACTAGAGTAACAGAAGCAAATAAGAGAGTACATGATAAAATGATGCCAAAAACA |

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| >Gm13_25653434 | TACTGATGTTCAAGCCATGAGAATGTCACCTGTCTATCCTGAGAACCGTTTGCAAATTGGTC<br>AAGAGCTTACACGAGGTCTTGGTGCTGGTGGTAACCCTGAGACTGGAATGAATGCTGCGA<br>AAGAAAGCAAAGAATCAATAGAAGAGGCAGTCTATGGAGCCGATATGGTCTTTGTTA[G/C]T<br>GTAGGTTCATGTACTTTTATCCAATTATATCTTCTGCAAATTTAATCATGATTTTGCATTATG<br>GATTATCTTTTTAGTACTGGTCTAAATGTTACACCATTAGACATGATTTACATGCTCCATTAT<br>AATATCGAAATGTGTCAATCAAGGACCAACTCTCGGAAATGCTTAACCTGTTA |
| >Gm13_29099729 | CACCAGCAGGCTTGAACTCTTGGAGTTCTTTGAAATTCAGCCATGGTTTCACCCACACCTT<br>GGCTTCATAGAGCTTCTTCTCACCAGCCTCAATAGCCTCAAGAGTAAGGTGATGCAGGGTA<br>CCAGCAACAACCTGTTCCTGTGCCCTAACCACCCTAGCAAACTCCAGAAGCGAATTC[G/T]T<br>CAACACCAACCAACACAAGTCAACACGTTTAGTTCACAATTACATAAAACATTGTTCATCAT<br>ATTGAACATAAAGAACTACTGCAATCACAATAACAAGAAAGTTCAGCAATCCTAATAACATG<br>TCAGTGCATTAGTGGGAGCATAAAACCCTCACTAGCAACATATAAACAGATGCAT |
| >Gm13_29100660 | GTGTATGGCCATAACATGACAATTCACGAATGATCAAACACTAGCATAAGCAACCTGGTCT<br>CGTGCATTCAAAACACGTAGCAAGTGGCAATGAAAAAAAGATTAAAATAAAAACAATTCTTT<br>TATTATTTTTGTGAAAAAATAAATAAAAGGAGAGAGAGAGTGATGGTTTAGCAGCA[T/A]CCT<br>GCTTCTTGTTGTGTTCGTCTACGGCGAATCGAGCGAGGGCTTCGGTTTCGACGCTGTTTTG<br>AGAGCCTTGGGAGTCGTGTAAGCCTCCGATCGTGGCCATCGGCGAGTGGTGGTGGTGGT<br>ATTCGGAGCAGTCCCCGGACGAAGATCGAAGAGCGAAGAAAATGAAGAGAAAGAAGA |
| >Gm13_30454510 | CCTCAGTTTCATCGATGGAGAGTGAAGCCTTAACTCTGCTTATTCCGTGTCCCAGATCTCG<br>TTGTTGCTTCCGATTCTTTGATTCTTCGCTTCTTTCTTCTTCTCACTTCACATTCCGATTCGT<br>CGCAGATTCTTTTGGTTTCTAAACATCATGATCGTCACTGCCTCCATCTGTAATC[T/G]GTGA<br>TTTTCTCTCTTTTCTCTCAGCTCATGAATTTTTCCTTTTTCTTTATTAGCTGATGAATTTACAT<br>GATCATCGAGTAAATCACTTTTTTTCCTTCTATTTTTATAGTTTGAATTGTTTTTTCTATTTTC<br>AGTTTCTTTTTACACTTGTTTTGTTATTATGTTTAATCTGTTAAAGAT |
| >Gm13_35154543 | CTCTATGCTATTAATCATGTTATGATATATTATTGAAAATTGGATTCTTACAACACAAGTTTG<br>ATGTGGATATTTACTATGTTGTGTCCCATGATGAGAAAAGCCAGCCAATTCCATATCCATTT<br>TTCAGTTAACTAGTAGTTTCTTTATATAGTTTTTGATGAAGCCTTCATTTCCAA[C/G]CAGGG<br>GGTCAGAGTTGCCTCAAAGGCAGTCTCCACGAGGTGCACATCAACATCGGACATCAAGTT<br>CTGACTCTGATCCATTGCATCATCGGCCGATTGCTGACCGAAGTCCAAAGCTAGGAGATCG<br>GCGTTCCCCCAGAGGTACTCAATCTGAGGGATTAAATCAGAAGAAGCTAGGAAC |
| >Gm13_37094440 | CACTGCTGTTAAAGGTAGTTTCGGTTATCTTGATCCTGAATACTTCAGAAGGCAACAGCTTA<br>CAGAGAAATCAGATGTTTATTCATTTGGAGTAGTTTTGATGGAAGTTTTATGCACAAGACCA<br>GCCTTGAACCCTGTCCTTCCAAGGGAGCAGGTTAACATAGCCGAGTGGGCAATGA[A/G]TT<br>GGCAGAAGAAAGGAATGCTTGATCAAATTATGGATCAGAATCTGGTGGGGAAAGTCAATCC<br>TGCTTCTCTTAAGAAGTTTGGGGAGACAGCTGAGAAGTGCTTGGCCGAGTATGGAGTGGA<br>TCGGCCGTCTATGGGCGACGTCTTGTGGAATCTTGAATATGCTTTGCAGCTTCAGGA |
| >Gm13_38425493 | CCTCTTCATCCTCTCCATAAAATTCTTCCACTCATCATCATATATAGTCTGCAAATAGTACAG<br>GGTTGATATCCCATCTTCATTCCCAACTCTGAGTTGTTCTTTACTGTAAACTACTTCTTCACT<br>GTAATAAGGGGTTAGAACACTGAAAGCCATCATTTTCTCAACTTGGGGGGCAT[A/G]GGGC<br>ATGTTCATAAAAAGTGAATTGGTGAAGAAAGAAATCCTTCTTCTGGCTTCTAGATTAACTGG<br>GATGTTTTGCATTGAATCTCTAGATGTAAGAATAGTATGCAAGCGCCGAATCTGTCTGTAGA<br>AGTTCTCATTGATAGCCTCGGGCAACTGAGTCGCATTCTCGAAAAGTAGAAC |
| >Gm13_38806205 | TTGGCATAATGTAGCAAGACAAATTTGTTGAGGAAAGAGAAGAGGTCTAATAATTGAAGGA<br>AAGAAGCAATGAGAAATGTCGCCAAAGCAGTCTAGGGAAGCTATTGCTTTCAATATTACAT<br>GTAAAGCATCTGCAACTTGTTGAAGATCTACCGGTACACTAACTAAACAGCGGTATA[C/G]T<br>TACCTTCAATCCTTGTGTAAGGGTTCGGTCACCAGGTCCATGTGCCTTGAGCCAATTCTCG<br>GCAATTACATCATTTCCAACGGCATCCTTGGCAACAGTACCGCCAGCTGAAGAACCTGAAC<br>TGTAATTTTTTTCCCCAGTCAGCTTAATATAGATGAAGAAACTGGGATTGAATAATA |
| >Gm14_314767 | TGCATTGCCTTTTTTTTTTCCTCTTCTGCTTCAAAACTATTGGATCTGATTTCAATATGTTGAT<br>ATGATTATTATTATTTATAATTATGTGCTTGCATTTTGCTGTTTTTTTTCTTTGAAAATCTCTG<br>GCCTCTCATGTTGAAATGTTTATTCCATTGTAGATTTCGTGTTGAATGCAT[C/T]ATCAGAGT<br>TAGGTTTATTTTTTGACATTTGGTGTAAAATGGGGGTGCCAACTTGGAGAAAACCAGTGATC<br>TACTGGGTTTGCCTTTTCGTCATTATCAATGCGTTTGTACAAATTAGCAATGCATTTTATCTT<br>CCGGGAAGCTACATGCATACTTACTCAAATGGAGATCCGATATATGC |
| >Gm14_314770 | ATTGCCTTTTTTTTTTTCCTCTTCTGCTTCAAAACTATTGGATCTGATTTCAATATGTTGATATG<br>ATTATTATTATTTATAATTATGTGCTTGCATTTTGCTGTTTTTTTTCTTTGAAAATCTCTGGCC<br>TCTCATGTTGAAATGTTTATTCCATTGTAGATTTCGTGTTGAATGCATCAT[G/T]AGAGTTAG |

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| | GTTTATTTTTTGACATTTGGTGTAAAATGGGGGTGCCAACTTGGAGAAAACCAGTGATCTAC<br>TGGGTTTGCCTTTTCGTCATTATCAATGCGTTTGTACAAATTAGCAATGCATTTTATCTTCCG<br>GGAAGCTACATGCATACTTACTCAAATGGAGATCCGATATATGCCAA |
| >Gm14_<br>357009 | TCCTTACCAAAAAGTGAAACACGTATTATAGTGAATATTAAAGAAGATTAAAAAAGTGTGGG<br>GGCAATTAGTAAAATTGATCTCTTAGAGAGAAGTGTGGAAATAATGGAGGATGGGGTCCAT<br>CTGGAAGCCAATCGAAAGCTGGCATTGATTCATAAACCCACAAGACACAAGACAGA[T/C]CA<br>CAGAGCACACTTGTCCATTCTCCAAAACAAAATGAAGAGCCTCCTCTTCTCTCTCTTCCTCT<br>TCCTCTTCTTAGCCTCCTCCGCCGTCGCCACCGTCCCCGCCCACAACATCACCCGCATGCT<br>GGCCGCACACCCCGGCTTCTCCACCTTCAACCACTACCTCTCCGTCACCCACCTG |
| >Gm14_<br>2810880 | TATGTATCTTGAGAGTTCAAGTGGACATTCAAATTATGTGCTAGTATCAGTATTTTAGTGAAT<br>ATATGCTGCTGCAGTCCGGCTTGTGTTTTCTCTTGAAACTTTCTTGTTGTACTTAATTGATGA<br>TCATGACAATCTAGTGCTGTTTTAATGTGAGATAAAAGATCATTTGCCTTGGA[G/A]CTTTGT<br>GTGGCCGGTTTTATTTATTTTATCTAAGAGGTGGGGTTTTGCTTTGTCATTCCGGAATTGAG<br>AATTGACTATGGCTTCTTTTGAGGGTTGTGTCATGTGTGTGGTTTCTATTAGCCTGCTGGTA<br>TAAATCAAACAGTTCTATTGAAAAGTTTGGAAGTTTGCTCGTACCAAACA |
| >Gm14_<br>4182470 | TTGGGGGGAAGACAAAGAGAACCACCCCAACATGTGAAACAAAAATGCCTTCTTTCCTGGC<br>CCACCCTAAGGAAATTAAAACACTCTTTGAAAACAACATCAACGGGAAATACTCGTCATCTT<br>CTTGGGAACAACCTTCTCCTTCTACCTCTCCCTTTTCTCTCTATCTCTTCTCTCTC[C/T]CTCT<br>CTCTCTCTCTTATTAAACAAATTGATACCCCTTTAATTAGTATTCTTAATTACTCTTTCCATTT<br>CCATATCCTAGCTAGCTACAAATATATATTATGGTTTTAGTTCTTTAAGGCATCAATCTGCAG<br>CATAGTCATGAACAAGAAGAAGAAGAAGAAGAGGTTCGTGGATGGCACT |
| >Gm14_<br>4345820 | CAAGGTATCGCAACATTGAAACTGTAAATTAATGCAGAAAAATTATCTCCATATCTGACATC<br>AAAAAAGGAAACTCACTCAAACAATAATATTAATCTACAGAGCCAAATGCTGAACCGAAAAA<br>AAAAATCACAAATCAATTAGAATAACTTTGCGAAGAAGCAAAGGGAGCGAGAATT[A/G]CTA<br>GGTTTGAACTATAGTTACTCCTGAATCCTGCCAACACTAGCAACCTTGCCCCAAAATTCCTG<br>AACAGAAATATGACAAACAGTATAAGTTGAACTATCAATTTGTAAACATGTAAGAACAATCA<br>CAATCGATGAGAAAATCAGAAAATAACAATCAGAAATTGCAACGAGATTTCTA |
| >Gm14_<br>5037341 | ACCGCTTTCTCACACCTAGAGGATGGGGCTTATCAGATTTCTCAGCTGGACAGACAAAATC<br>TTTCAAAGGCCAGCTTATAGGTCTCATTTATGCAACTCAGTACCTAAGATTTCCTCTTTTACT<br>TCTCAACTCTGTCTTCATTATCGTGAAGTTAGTTTCTGGATGATGCCTGACAAGG[G/C]GAG<br>AAATCAATACATATGTATGCTTTAGACACGTATCTAGTGCATTGCCATTGTTATTATTTTCAG<br>ATGCTAAATTTTACTTTAATCATAACAATATCTGTTGTTCAAGTCACCTTGAGCTTTTCTTAT<br>GTTTGACTAATAAACAAAACACACAAACATGAATTATATATGTTGACATTT |
| >Gm14_<br>4735439<br>6 | ATTCTTTGTTCTCGTCCTTTTCACTAACCATCCACTGTTGTTTGGATTTCTTTCTTTATATATA<br>GTTCTTCTCTTCATAGTGAGTGAGAGAGAGAGAGAGAATGGTTTCCAGGGTTCACAAGAGA<br>ACAGCACTGTATAGGAGCATACAACAGCTTCGTTCAATCACTAACTCCCATGCG[G/T]TGAT<br>TAATTACTCCGAAACATCACTTTTTTCTCCCTTTAATTATCTGATATATATACTTCTTCTCTTT<br>TAGTCAAAGCTTCTCCACTTAATATTCATATTTGAATAGAATTACCACTAAACTTGATATATA<br>TCAATATCCTTAATTTATTAATTATTCTACTTATATTCCATGAGCTAAA |
| >Gm15_<br>28475 | CTAAATCTGAGCCTACTGAAGTTAAAGAAGAAGTTCTGGTGCATTCAATTCATGAAAATCTT<br>AGTGAGACAAAAATGGATGAGGATAGTGCACATGATAAAATGCCCACTGGTAAGCCTGTCA<br>CACATACTGAGCCTGCTAATATAGCTAGGCCAGAAAATATTAAAACTGAGAAACAA[C/T]AT<br>GGACAAGATAAGCAAGAAAATGTGGACCAGCCATCTGATCATGGGGCTGGAACCAAGTCT<br>GGTAAGCCAAAAATAAAGGGGGTCTCATTGACTGAGTTGTTTACTCCTGAGCAAGTCAGGG<br>AACATATCACTGGCCTCAGGCGATGGGTTGGCCAAGTAAGACTATTTATTCTTGTTG |
| >Gm15_<br>222394 | ATCCTGGAACCGCTGCAAGCACATGCAACACCAAATAAACCAACTTTATGATTCTGTTCATA<br>AGTAAAATTTACATGCATGCAAACATGAGACATACCTGGTACTGGGGGAAGTGATCCGGCT<br>CCGGCTCCGGCTCCGACTCCCGCATGTCTTCTAGTGAGTAGCAGGAGGAACAAGAG[G/T]A<br>TAGAAAAAGCAACTACGGCTACAGTAACTGAAAGGGTGAGGGACTCCATAGCATCTAACTT<br>CTGATGGAATGAAGATGATGAAGGTGTGGTGTGGTCAATCTTGGAATTTGGAAGCTATAGT<br>TATTAGTGAAAGCATCTTTCTCTTCCAGACTCCCAGTCGTGTCGTGCCACCAATCAC |
| >Gm15_<br>440713 | GTTGTTATTACTCGAGCAGGACAAGCCACACACAAAGTTATAAAGTGCAAGTGTAATATACT<br>CATAAAAGCATAAAGATGACCACAACAAAGTTGTCAAACCTTCATAAATTCAAAGTTCATAC<br>TTCCAACACGATTGATCCACAAAAAGAAGAAAAAAAGGATGAGCCAATGCACGAC[T/C]ATC<br>TGTTTGAATAATTTGATACACTAGTACGGATTGGTATTGACGTTCGTGTGATTCAACAACAC<br>TTGCCTTAGTTTTTTAACTAGATCATTCACCTTCATTTTGTACGCGTCACCCATCTTGCAAGA<br>CAATAGACATGAAGTTATCGCAATTTGGGCACTAATAATTACTCATTTCATC |

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| >Gm15_899468 | TACATTTCACACGCTTATTTTCTCTCCTTTTTTTTGGATTATAAATTTCACTCACTTTATTCAC<br>AGCTAACATCACTCAAATTGTAAAACAGTCAAAAAAACATAGGGTACAAATGCTAAGAACTA<br>AGGTATGAATGCATTATGCATAGCCTCAAATGCATCTCTATTCATAATTTCAC[G/A]CCTTTC<br>TTGATTGTCTTGATGGATGACCTCAAGAAACTGTTTGATGCTGCAAGATCGGCATCATCACT<br>TGCCGTTGGCTTCTTCCAAATGTAGTCCACACCTTTTTTGATCCCAAGAAGCAAAGATGGA<br>GATGATGGAATTCGTCTCAAGCTCCTAGCACTCTCTGATCTAGGAAGTCTT |
| >Gm15_3694443 | TGACGATTCTGGCAGAATATCAAAAGAATTAAAATATTAAACCACACCCTAAAATGGCACTT<br>ATCTTGGTCTTGTTCTGTAGAGAACGTAAGACAAATTAATAAGCAACCCATCGCGATATTCA<br>TATGCTTGTCACAACAAAAAAGAATGAGTTGGAGGATGAAGTGATTTAAAACAAA[C/T]ACCT<br>CCTTCTGTTTAGCCTCAATAAGGGCAGCTTCTTTTTCTTTTTCAAGTTGAGCTGCAACTTCAT<br>CATTAAGTCTCTTCCGTCCCTCTTCCAACCGCCTTTCAATCTCCACCTGAACCTCCTCAGAT<br>TTCAAGCTTTCTTCAACTCTCTTACGTATTGCTTCTTCAACTCTCTTTGCA |
| >Gm15_4176388 | ATCTATAGATTTCTTACAATTTGTGGGGGATGCCATGTGGGATGGACCTTGCAATAGTAGC<br>CATATATAGTTCACACTAGCTGTATTCTGGACTGCTGCCAATTGAGTGACTTGTTCGATGTT<br>TGTCTTATTGCAAATCATGTTCATAGCTCACTGGCAATGTTTCTTTTTGTTTAAGC[A/G]CAG<br>GTACTCATATAATGAGGAGACTAGCGCATATGAAGAAGTTCACGAGGTTGCATCCAATGTG<br>AGTTGAGTGACTAGTTTAAGGGGAGAATAGGCTATTTAGCATAGCCACAATCACTGTCTCA<br>GTGGCTCATGTACAGACCGAAGCACTCTTGATCTTTTTGTACGTTATGGGGGATT |
| >Gm15_4176389 | TCTATAGATTTCTTACAATTTGTGGGGGATGCCATGTGGGATGGACCTTGCAATAGTAGCC<br>ATATATAGTTCACACTAGCTGTATTCTGGACTGCTGCCAATTGAGTGACTTGTTCGATGTTT<br>GTCTTATTGCAAATCATGTTCATAGCTCACTGGCAATGTTTCTTTTTGTTTAAGCA[G/C]AGG<br>TACTCATATAATGAGGAGACTAGCGCATATGAAGAAGTTCACGAGGTTGCATCCAATGTGA<br>GTTGAGTGACTAGTTTAAGGGGAGAATAGGCTATTTAGCATAGCCACAATCACTGTCTCAG<br>TGGCTCATGTACAGACCGAAGCACTCTTGATCTTTTTGTACGTTATGGGGGATTT |
| >Gm15_6364520 | AATCATTCTCCATGAACTGTAGTGTGAGTGGTGTAAGTGGATTGGAAAATCTGGGTGCAAA<br>CAAGTCTGGATCATTCTCCACAGATCAACAAACTAGAGACTTCATGATGAGCCGATTCTTG<br>CCTGCTGCAAAGGCTATGACTCTACTGCCTCCTCAATATTCTTCAAAAAAGCAATCT[G/T]CA<br>CTAGTAGAGCAACAGCCTAGAGATGTTAGCAAATTGGTTCGCGATGATAAGAAGCAATTGC<br>CTATTAAGCATAACACTGCTATTATACCATACACTGGCCAAAATCAAGAGGAAGAAAGTGAA<br>GATGAAGTTGATGATAATGAGTATGACAACTCTTCTAATATCGCAGCTAAAGGCT |
| >Gm15_39177610 | AAAGAAGCTTAGAGGACGAGTTCGAGTTATGGCATTAGGTGCCTCACATTTATCACCCGAT<br>TTCATGGAATTTTGGAAGATTTGCCTTGGTTGTCGGATGACTGAAGGATATGCAATGACGG<br>AGAGTCTTGTGTTATAAGTTGCATTGATGAGGATGACAACCTTGTTGGCTCTCCTAA[T/A]GT<br>AGCCTGTGATATAAAACTTGTGGATGTTCCAGAAATGAACTATACATCTGATGATCAGCCCA<br>ATCCCCGTGGGGAAATTTGTGTTAGGGGTCCCATTGATGAAGATGGATGGCTAAATACTGG<br>AGATATTGGGACTCAAGGTTGTTTTTCCCAGCGGAGGGTGCTGATAGCAATACAG |
| >Gm16_3592639 | TAGCAAGAATGAAGAAAATGTGAAGAGAAAAGGGAGCTACTCAGATCTGGGGCTGAAAAC<br>GGCTATAAATAACCCGTAAACCACTCCTAATACCTCGCACTCTCTTCTCTGCTTCAACTTGC<br>TCCCTCAGAAGCGAAGAAGAAGCCACAGAGAACTAGTCTCCTACTCTCACCCGCAAG[C/T]<br>TACGAGACTCTCTCACCGGCTTTCTCTCCCTCTCTCTCTCTCTCTCACTTCCTCCTTCCT<br>TTGTTTTCTTAAGTTTCACGATCCGTTCCACAATTCTCATTTTCCCTTACTCTTCTTTCTTCTT<br>TCAACACTTCAATTTCACTCCGTAATTTTCCTCAGATCTACACTTAAAACGTAA |
| >Gm16_24688446 | CTTGTGTTATGTTTCTTGCCAGTACTATTTCTGTGAAATATGTTCTCATTAGTGGCGTAAATT<br>TTGTTTCAGTATGTGATGTTCTATGCATGTGCACTGGACCCTGAAGGATGTGGTGTGAAATT<br>TGCCATGGTTCTTGCTGATATGTTTGGATGTGATGTTAATCCCCCTATTACTAG[G/T]TAAAT<br>TTTTATTGTTGCATTCAAGAATTATAATTCTACTGAATCCTGATCGATAATGCTAAATAAAAT<br>ATATAGTTGGAATGGGGCTTATTTATACACTCGTCACACTTGGCATAATTAAATTTACTGCC<br>TGCATTTTTTTTCCATCTGATCAGTGTTGTTAATGGTGGATGGCGGTTCA |
| >Gm16_24688447 | TTGTGTTATGTTTCTTGCCAGTACTATTTCTGTGAAATATGTTCTCATTAGTGGCGTAAATTT<br>TGTTTCAGTATGTGATGTTCTATGCATGTGCACTGGACCCTGAAGGATGTGGTGTGAAATTT<br>GCCATGGTTCTTGCTGATATGTTTGGATGTGATGTTAATCCCCCTATTACTAGG[T/C]AAATT<br>TTTATTGTTGCATTCAAGAATTATAATTCTACTGAATCCTGATCGATAATGCTAAATAAAATA<br>TATAGTTGGAATGGGGCTTATTTATACACTCGTCACACTTGGCATAATTAAATTTACTGCCT<br>GCATTTTTTTTCCATCTGATCAGTGTTGTTAATGGTGGATGGCGGTTCAT |
| >Gm16_35581397 | AACTGAGTGCCTTGCTGAGTTAAAGGCTGTAATCTCCATTTCTTCCTCATCTTAAGATCTCA<br>TAAAAAGATTTGGACATTTGTTGAAGCCTATTTATAGTCATTATACCCGAGTTGGAAAATCA<br>ATGTGAAATAGTACGAGATGATGCATTGTAGAGACTAGAGAGCAGTCTTAAAATT[G/A]GAC |

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| | TAGTTTACCCAATTCAGCCTTGTGGCCTGATAGCCATGTACACCACTTAGGTAAAGCAATTA<br>TAATGTACACTAAAAGTCTAAAAAGAACAATGAAGTACAGTACAGTAGCATTAGCATCCTTC<br>AACTTTTGTTATCTCAGTGTGTTTATAACTATTTTTTCAAGGACTGATTCCGT |
| >Gm16_3558950 8 | GACCTTCATACTCTGAGCATCCTCATCAATTGTTTCTGGCATCTAAAGCTCACATCACTTTT<br>GCTTTTTCTGAATTGGCCAACATTCTCGAGAGGGTTTATCACCCAGATGCAATAACCCTCAC<br>CACACTGCACTTTTTCACGACGAGGGGGTAGCTCAAGGGTTCCAGCTGAACAAAT[C/T]GAT<br>TGTGTAAAACAGCAGTGTGCATATAATCTTTCTCTTCCTTTTTTGTCAACAAGGTCAGCGCT<br>TCACCAAGTAAGTCCGAGTCCATTGATCATAAGAGTGTATATCTGGACATTTAAATGGTAAT<br>CTTATGCCGAGAGAACTTTTCAGCATCTTTTGATTAAATGTTACCATTTGAAT |
| >Gm16_3559056 8 | CCTGACATCTTTACCTTTAGCATCCTCATGAAGGTTTGCTGCCACCTTACTTAGATCAAACG<br>GTGTTTGTTCTATGCTGGGTAGTATTTTTAAGAGGGGTTATCATCCTATCCATTAGGATCAC<br>CACACTTGTGACGAATCTCTTTTTTCGTGGGAATGTTGAAGAAGAATTGTAAGTT[A/G]GTGA<br>TAGTGGGTTAGCTCAAGGATCTCACATGATCCAGGTGGAATTGATCAGGTGGAATCCTTGG<br>ATCATGTGATATCCTTGAGCTAATACACTATCATGAAGGCTTCTTTAACATTTCCAGGAAGA<br>AAGAAGCCCTTCATGAGTGTGGTGATGGTAATGGTGATAACCCCAGAAAAAAC |
| >Gm16_3559087 3 | GAAAGAAGCCCTTCATGAGTGTGGTGATGGTAATGGTGATAACCCCAGAAAAAACAGCATT<br>GATCTGAGAAGGGTGACCGTAAGCATTTACGAGGATGAGTGAAGATATCAGGGCTAATCC<br>CTTGTTGACTGTAATGGTTGAAAAGGGGAATCACAGTGGGATAGTGCTTCATCTTCAC[G/C]<br>TGAGAACTGAGAAGACTGTTAAAGTGGATGATAGGAGGGGGAGATCGCTTAAAAAGCATG<br>CGGTTGAACAAGGCAACAACATGATGGTTATCAAGGTGATTGTCAGTTTAAGACTGAGAAT<br>GAGAATGAAGAAAACGTGGAAACACAGAGAGGGAGGGAAGAAACCTGAAGAAGGAAGAC |
| >Gm16_3559087 6 | AGAAGCCCTTCATGAGTGTGGTGATGGTAATGGTGATAACCCCAGAAAAAACAGCATTGAT<br>CTGAGAAGGGTGACCGTAAGCATTTACGAGGATGAGTGAAGATATCAGGGCTAATCCCTTG<br>TTGACTGTAATGGTTGAAAAGGGGAATCACAGTGGGATAGTGCTTCATCTTCACGTG[G/T]G<br>AACTGAGAAGACTGTTAAAGTGGATGATAGGAGGGGGAGATCGCTTAAAAAGCATGCGGT<br>TGAACAAGGCAACAACATGATGGTTATCAAGGTGATTGTCAGTTTAAGACTGAGAATGAGA<br>ATGAAGAAAACGTGGAAACACAGAGAGGGAGGGAAGAAACCTGAAGAAGGAAGACACT |
| >Gm16_3559105 4 | GAGAACTGAGAAGACTGTTAAAGTGGATGATAGGAGGGGGAGATCGCTTAAAAAGCATGC<br>GGTTGAACAAGGCAACAACATGATGGTTATCAAGGTGATTGTCAGTTTAAGACTGAGAATG<br>AGAATGAAGAAAACGTGGAAACACAGAGAGGGAGGGAAGAAACCTGAAGAAGGAAGAC[T/<br>A]CTGTGACGGGCCAGGCCGGAAATGGAAAGAGTGTGGTGTGGGCTTTATGGCAAAAGGT<br>ATGCAGTAAACAAAAGGAGGGTGTGGTGGGGTTTATCAACTTGAAATGATGTGGGTGATG<br>GAACTATGGAAAGGTCAGAACCTGATACCTGCTTTCTTTTTGAAAAGATAATCAACTTTTAT |
| >Gm16_3559117 1 | AATGAGAATGAAGAAAACGTGGAAACACAGAGAGGGAGGGAAGAAACCTGAAGAAGGAAG<br>ACACTGTGACGGGCCAGGCCGGAAATGGAAAGAGTGTGGTGTGGGCTTTATGGCAAAAGG<br>TATGCAGTAAACAAAAGGAGGGTGTGGTGGGGTTTATCAACTTGAAATGATGTGGGTGA[T/<br>G]GGAACTATGGAAAGGTCAGAACCTGATACCTGCTTTCTTTTTGAAAAGATAATCAACTTTT<br>ATAAATTTGTGATAAAAATAACAATAATAAATTCTTTAACAAAATTATATTACTAGAGATTGTA<br>ATTAGATATTATTATTCAGGTTTAAATAATAACCCGCCATTTGATTCATGTTTTT |
| >Gm17_2714446 | GTTTCCTTTCATAATAACCTATGATTTTATTCCTTTCATTCTAAAAATTAATTAAAGAATATAT<br>GCATGAAATGAAAAAAATAACACTCCCTTCCATTTCCTCCAAACCTAACAAACCCTGGAAGT<br>CTAAAAGATCCATCTCTTGCTGCAATTAACATGAAAATAAAATTATCCCAGGG[C/T]TTACGG<br>GCATGGAACATTATGCCAAGCAGTTACATTAGGACGGGCTTCTTCTTCTCTTTCTTTCCCTT<br>CCACTTCCATATACTTCTCAATTCCCCTGATCATGGCCTCCATCGCCACCTTGAGAGGCTTC<br>CTGCTCCTCGGAGATGTTATGGCCGGCTGGGAACCACCATCGCCAGAAGC |
| >Gm17_3909243 | GTTTACAGGCACAACCTGTTAATGTTCCTACAAGTTTTAAGCAGAGGGCAGTGCTTGTGGA<br>TGAGATCTGGCATGCTGCTGGTGATAATGCTTCCGACATTGATTGGTATGCCAAGCGCACT<br>GTCCTTGGAGGAATATACTCAACAACTGAGATTTATATGCTGACAGATAGCTCTCCT[G/T]G<br>TTTGTTTTTCTTGAATTTCTTCCCCTCCCTTTTAAAGACACAAGCATTTCATAGAATTTGCTT<br>GATTCTCTTTCATCCATTCACCATTTCTAGTGTTTTTGTGCCTTTCTTTTTATGATGATCATTC<br>ATTTGCAAGTCAACTTCTGGTTCTATGATTGCAGTGACCATGTTTTCTTTTT |
| >Gm17_1036605 3 | AAATATCCATGCCTACACCTGCACTCATCACCAACATATTTTTTTTCTCAATTTTCATCTCTA<br>GTGGCCCCCACATAGTAATAGCTTTTTCTCTTTGACTATTTTCCCTCCCTTTTATTTTTCTCA<br>ATTTTCACAAGTAAAGCAATTTTGGAAAATGGGACCAAGATTTTAACTTTACT[T/C]TACCTT<br>GGCATTCTTTGAACTAGGCCTTCACCAAAGTGGTTGAAAGCAATAGTGACCTGCATGCTCT<br>TGTCCTGAGTGTAGGAATCACTGTGGCCCAAAAGCATGACCTTGTCATGGTGAGTCATGTA<br>ATTGTTGGAGATGGTAATCCCAGTAGACCCATGAATGGCATCGATCAACCCA |

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| >Gm17_11363185 | AGAAATTAAATAAACTTATCTGAAAAAATAATAAAACATTCTTTAGTCAGATTATTGGAAATG<br>TTATTCATGAGATTTTGGACAGGTGATGAAAGTCTATCAAATGAAATCTCTGTTACTATGAT<br>CTATCACTGCATAAATGAAGCTTGATTAAATTTGGGGATGTTGAGAGGCGTCTT[G/A]CCTG<br>GTGGTGGCCCTGAACCCGGAGCTGGAGCTGACCCTGAAAATTCGGAAGAGAAAAAAACAA<br>ACAGAGCAAAATTAATTAATATTTAACAATGTGCACTCAAAACAGGGATAATCATCACGAAA<br>CAACCATAGAAAAGGAATATAATAAGATGGGGTTTGTACCGTTTGTGCAGCTGG |
| >Gm17_32028579 | AATAGGGTGATGAGTGGGTGCGTAGACATCGAACAAAGATGAAGCTGAAGGTATATGCGG<br>ACCGCATGTCCCAACCATCCCGTGCGATTCTCATATTTTACAAGTATTTTCTCTTATTATCTT<br>TGCTTTTCCTTTCTTATTTTATTTTTGGAATTTGAATTTGGTCTCTGCCGCATGTT[C/T]GAGT<br>GAATGGAATAGATTTTGAGGATGTCAAAGTCGATTTATCCCAACATCACCAGCTATCTCCCC<br>AATTCCGAGGTACTTAATTCGTTATTTCTCTTCTCTTTTTTTTTTTTTTTTTTTACTTTCACGG<br>AAAACGCTTTGTCTCTCTTACCCTTTAACTTTTATTGGATTTTCCTTCA |
| >Gm17_39520782 | TAAAAAAAATTAATTTTGTTTCACTTAGATCAACAACTAATAGTTATTAGTGGTGACAAGCGA<br>TTTAACTTGATCATGGTAGTAATAGCTAATAAATTTTGATTTTAACTTCTTCCTTCTCTTTCAC<br>CTACTCTTAACTTTTGTTACTATAAATAACCCCCACTCACTGGCTCACTCTC[A/G]TACAACG<br>CATCCTAAATAAGCATCTTAATTCATAGTCTCTTGGTCCTTCCTTCCTTCTTCTGCTCAATAA<br>GTGTGTGCCACTCTAATTAATTACCACCCCCTTCTAGACATAGTTCTTCTCCCTCTGTTCTC<br>TATTCTCTACACTGTGAAACCAAGATGAAGGTAGCATTTGCAGCTGTT |
| >Gm17_41489915 | GATGATAAACGGCACCTCGCAGCACATGCTCCGTTACAATCTGAAATTAATTATTACCATCA<br>ACACATAAAAAATTTGTATACTTAACTTCCAATTTCAAATTAGTTATGAATTTTATATATGAAA<br>CTTTAGTTAGTACCTATCTGCTGAAGAAGAGACCCCTGCGTTTGTGCATGTGC[G/C]TGCGG<br>TTCCTCAAAAACATGGTCAAATTAGTTAATTTAATTGAGTAGAACTTAGTTAAAAGAAATTAA<br>CAAATTCAACCTAACTTGGTTACATAAAACGAACAAGAAAGAGAGCTAACATATTTATATGG<br>AAAAATTAAGAAGCAGAATATTTGAATATTTATGTACCGATTGATCAGCA |
| >Gm18_1392264 | AGGCTCCATTGTCCAAACACATTGTCCTTTTGTGTATAATAACTGGCATGCATGTCAAAATA<br>GAGAAGCAAGCTAGAAGGGGTGAAGAATTGAAGCACCTTCTCTGACAACACTAGGTTCCTA<br>AAATGTGTTGGAGCTCTAGTAACTCAGAGGTGGTTGCTTCAAACAAAACCACGTTA[C/T]AA<br>GAGGTTTTGGACATTGAGAACAACATGGCTCATCAGTGGGTGCTCAATGCTCCAGAGCCAC<br>CTTCCATGCTGCGTCAGGTGGTGGACAACGTCAAGGAAACCCTCTTACCGCATCCAAATCC<br>AAACACATTCTCTTATCTCAGGAACCAACCCTTTTCCAAACGTGCCTTTGCCTTGT |
| >Gm18_1392269 | CCATTGTCCAAACACATTGTCCTTTTGTGTATAATAACTGGCATGCATGTCAAAATAGAGAA<br>GCAAGCTAGAAGGGGTGAAGAATTGAAGCACCTTCTCTGACAACACTAGGTTCCTAAAATG<br>TGTTGGAGCTCTAGTAACTCAGAGGTGGTTGCTTCAAACAAAACCACGTTAGAAGA[G/T]GT<br>TTTGGACATTGAGAACAACATGGCTCATCAGTGGGTGCTCAATGCTCCAGAGCCACCTTCC<br>ATGCTGCGTCAGGTGGTGGACAACGTCAAGGAAACCCTCTTACCGCATCCAAATCCAAACA<br>CATTCTCTTATCTCAGGAACCAACCCTTTTCCAAACGTGCCTTTGCCTTGTTGCAA |
| >Gm18_2151360 | TACTAACATAATCAAAGAGAAGTCATGTTCAGTGTTTAGTATGTAGTGGTTTAGATAAGTTC<br>TATGATTGGGCAGGTACAAAGTGTCAGGTCCTGATGGAAGCAATTATTGGATCAGCAATGA<br>GGCACATGTTGGTGGAAGTGATGCAGATGATGCTTAGTCATCCTACCATTCCCAAT[T/C]GT<br>ACATTCCTTAACCCTGTGTTGTTCAATGAATGTGGGTTTATATAGGAAATTTATCAAAAACAA<br>CGTAGTTGAACATATTGCCAAACCCTGTCAATAACGTATTTAAGTACATCTAAATTTTTATCC<br>TAATGTTTTCTTTTAAAGAAAAAAACTTATTCAAACTTCTAATTTGTCCTGT |
| >Gm18_2235005 | TTTTAAATTATTTTAGCTGTTAATTAATTATGCAATAGAGTCACACATTGGATTGTGCTGAAA<br>GGATCTAGTCTAATTTTTTATTCTATAATAATGGAACCATAATGTTCTTTATTTTGAATGATTG<br>TAGCTGATTTTTTTGTTTATTCTGGTAATGGCAGTTGATATGCTGAAGGCAA[G/A]TGCAGTT<br>GACAAAATTCCCTCAGATTTAGAAGGGATGGAAGCATCAATGCAACATCTGCTAGTCTTGA<br>TTGATGACATCTACAAATATGTTGACGATGTTGTGGTACGATATTGTTGCCTTCTTTAATCTC<br>TCGCCTTGTCCTCTGAGATTGTATTATTATATAATTTTTCAACACAGGA |
| >Gm18_2235806 | AAACGTGGAATGTCAGCGTTTTATACTTCACTTTTACTTCGCTTATTTTTTTATTTATGTTTTG<br>TGCTGGTCTTTGCTAGGTAAGTTCACTTATTGTCCAAGGTATGCAGTGTAGCGTTCACTTGT<br>TATTTTTCATGTAATCTGTATTTGAAAGAAAATGAGCAAAAAGCTTTCTCTCC[C/T]TTATCTA<br>TTTATTTCTTATTTATTGAGATTGGATCAAGTTTCAGAAAATTTAACAGTTTCTTTTAGAGGTT<br>AATTAGTCATTTTTTTTATTAAATTTCTGAAATTTGAGACTTTTTCTTAACAAATTTTGACTTC<br>GACTTTCATGTATGAAGATTGTTAGATTGATAATCAATTAGAAAA |
| >Gm18_8379461 | TCATTAGTGATGATGTGATATTAATATTATTATTTTATTATATTTTCTCGTGCCTAAAAATGTC<br>AAATTATTTGTCTTAAATGATTTAATACTGTATGCATTAAATACTTCAGACAAACAAGTTCAC<br>TGAAAATTATATCAGGCAAAAGCTTAATGCACGTACAAATTCAATCTATACG[A/G]ATTACCT |

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| | CAACAATTAACATAGAATCCGTATCGAAAATACACAGAAAATATGAGCTCGTGAAAAAGCCT<br>ATTGTACAACAAAGCGGGGTAAAATTGAGACCCCTCTTCTGTATACTGTGTGCCAGGTACT<br>AGCAAGGAGAAAGTGAAGGAAACAAAATCCACTGCAAGATGTCACATACT |
| >Gm18_<br>8828934 | CTCAACTAAGCTTCAAGATCACATTCACAGCTGATTAACTACAACCAAGAAGGGTAAAAGAA<br>CTAAGCAACTAAAAGAAGAACTTTCGTGGGGATGCTCTAGATGCAACCGTTGATGGATAGT<br>TTGAGGACTTGAGAGGAGGAGACACTGCCTTGCTTTCTTGACCCCCAAGCTCTCTG[G/C]C<br>AAGCAACTTAGCTGCCCTTGGATCTGTTAGTAGTGTCTTCTGGAAGGACTGTGAGAAGCCA<br>GTTGCAATGATAGTCACATGAATCTCCCCATTGTAGCGATCATCAACAACGGCACCAAATAT<br>AATATTGGCAGAAGGGTCGGCTAAACTTGTCACCACCTACAGCAGTTATGAAGTTT |
| >Gm18_<br>8834781 | ACTTTAAGAGGGGGAGACAGAGAGAGAGAAGAGAGATCATATATGGCTATTACCCAAACG<br>AATGCACAAACTAATTTATCAATTACCCCATTCAGCAGGCAAATATTGCTTTTCAAAAACATC<br>ACTATAATTGCAGATGTAGAAAAATAAAGCCACACCTGGCATCGCAATCACAGATT[G/T]TC<br>CACTGCCTCTTGAAGTAACCTGAGTTGGAGGAGAGAACAAATTGCCAAACGTTTTGACCTT<br>TTCATGCACGCATTGTCCTGCTGCACCCTGAAAGGTTTATGACTTCAGTAATCAGCTAAAGA<br>GATGTTCATTGAAACAAACCAATTTATGCATAATGAAACCTAGGTATTCAATAAA |
| >Gm18_<br>8846329 | AGTTATGGTAAGAGTGTTACCCTCAGCCGAGAATCTGTAACATCTACATGTTGGTCCAAGT<br>CATCCTAACAAAAGAAGAGAAAGGATTAGATTTCAGAAATGAGAGAATAAAATGGACAGTA<br>AAAGTTGCAAAGAAAATTAACATATGAGGGGAACATACAATGAGTCTGGTATGTAGA[T/A]T<br>CAGCTCTTCATTCACAGCCAACGCAATATGTTTAGTACTGATTACAGTCTCCTCCAATTTCT<br>CAAGGCCATCGTCTTGCTCTGCTTGAATAGCACATTTCCAAATTTAGATCCAAACAGCAGAC<br>TATGTATGGGTAATATTTTTCAATTTCAAACAATTCAGATTAAGTGACCTTTCAT |
| >Gm18_<br>9028509 | ATTTGGTACTGAATTTACTTGTTCTTGTTTCCTTTTAAACAAGGCAAGTAAAACTATTCAAAA<br>CACAAGGACTCGATACAAAACTACGTGCATACATCATGCAATTGAATAATTGCACAACATGT<br>ACAAGGTTGCATACAAAAGTGCAATGTACTAATATCTTAGTTGAGCTACACATT[T/G]TGAAA<br>TCTCCTTTCTTTTTACTCTTCATTTTAAGGTCATCAGCATAAAATAAAGACATATTATATCATG<br>CAACTAAAAACATAACTGAGTCTTGACTCCTAACTAAAACTTGAGCCATCTCTTCTCTTTTTC<br>TTTGCTTGTTACTGAATTTGAGGCAGAGGCATGAACTGCTTCAGCATC |
| >Gm18_<br>9133223 | GTAAAAATAGAAAAAAATTAATAATTCCTTTCCTTCAACGAACCAAATACATCATTTCGTGCC<br>GTTTTCAATTTCTTCTCTTCAGAGGCAAAGAACGGTGCAGAACAGATCATCGGTTGCCACG<br>TCAGCATCGTCCAACGGTAACACGTTTAGATCAAACGGCAACGGTTCTCGCCGGA[C/G]CG<br>ACGACGCCACGTTGTCGCCGTCTCCGTCGTCCACAACGGATGACGACGAGTCGCAGTCGC<br>TGCGGCAGTCCTCGGGAACGACGGGCGGCGTCCGGGGATATCTCCGGTTGACAATCACC<br>GGCGCCTTCGCCGGCACGGCGGCGCGTGGGCCGCTGAAGGATTCTACGGTGCTGCTCAT |
| >Gm18_<br>9259541 | GCATCTATGGAAGTAACTTTCAACCAGAATTTCATGACATTTTACCACTGAATGCTTTTCTTT<br>GGTATGTCTACCAATGTAAGAAAAGGATAAGATTAAATATGATCCACAGCATACATGTAAAT<br>CTACATGAAGGTGCAGATGTTAATTGAACGGGTTGATGGAAAGCCACTTTCTAA[A/G]ATGT<br>GGGTTATTCTAAAATCCCTGTGAAAGCTTTCAGAGCAATGAATCCTAATCCTAAATTTATAC<br>AGATGCAAGATACTGAAATATGGCACTTCATGTTTTAATTACATAAAACTAAGATCATGCTT<br>GCAAACCCCATTGATTCATGTACCACAAATGTGCTAGGTTCTGTGTAGAGTT |
| >Gm18_<br>9299254 | TTCAATTTATGATAGTATTTTGGATATATAATATATATATATATATATATATATATATATATA<br>TATATATATATATATATATATATATATATATATATATATATATATATATATGTACGAACACAGA<br>CACAATCACAACTCCCTCTATATCTCTCATCATCTCTTATCTCTCTCTCT[A/G]CTATAATACA<br>AGACCCTAGTCCTCCTTCACGCCCCAACCACCACCATCAACCAAACCTTCCTCTCTCAATTT<br>CCCTTCAATTCCCTTCTGGGCTTTGCAATTCGGCCAATTGGGTCCCCAAATCTGTAACCTTT<br>TCCTCTGTCTAACGCGAAACGGAAGAGAAACACCCACATAGAGAAA |
| >Gm18_<br>9299278 | TATATAATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATAT<br>ATATATATATATATATATATATATATATGTACGAACACAGACACAATCACAACTCCCTCTATATC<br>TCTCATCATCTCTTATCTCTCTCTCTCCTATAATACAAGACCCTAGTCCT[C/G]CTTCACGCC<br>CCAACCACCACCATCAACCAAACCTTCCTCTCTCAATTTCCCTTCAATTCCCTTCTGGGCTT<br>TGCAATTCGGCCAATTGGGTCCCCAAATCTGTAACCTTTTCCTCTGTCTAACGCGAAACGG<br>AAGAGAAACACCCACATAGAGAAAGAGAAAAAAAAAGGAGAGGAAGAA |
| >Gm18_<br>9299279 | ATATAATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATAT<br>TATATATATATATATATATATATATATGTACGAACACAGACACAATCACAACTCCCTCTATATCT<br>CTCATCATCTCTTATCTCTCTCTCTCCTATAATACAAGACCCTAGTCCTC[G/C]TTCACGCCC<br>CAACCACCACCATCAACCAAACCTTCCTCTCTCAATTTCCCTTCAATTCCCTTCTGGGCTTT<br>GCAATTCGGCCAATTGGGTCCCCAAATCTGTAACCTTTTCCTCTGTCTAACGCGAAACGGA<br>AGAGAAACACCCACATAGAGAAAGAGAAAAAAAAAGGAGAGGAAGAAA |

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| >Gm18_9299296 | ATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATATGTACGAACACAGACACAATCACAACTCCCTCTATATCTCTCATCATCTCTTATCTCTCTCTCTCCTATAATACAAGACCCTAGTCCTCCTTCACGCCCCAACCAC[C/T]ACCATCAACCAAACCTTCCTCTCTCAATTTCCCTTCAATTCCCTTCTGGGCTTTGCAATTCGGCCAATTGGGTCCCCAAATCTGTAACCTTTTCCTCTGTCTAACGCGAAACGGAAGAGAAACACCCACATAGAGAAAGAGAAAAAAAAAGGAGAGGAAGAAACAATTTTAGGGTGTGGG |
| >Gm18_9349112 | TGTTAATTGCAGGTGCCTATTCAGTCGGTAAAAGAGCATTTGTTGAAGGAAGGCATAGAAGTTCGAATATGATCATATGCATTTAGTGGTAAAATTTTTGAGATGCACTTCACAATAATCAAACCTTGTACGTTATCACTTTTTGTGTAATCTAACGAAGCTCTCAAAATGTCAACATT[T/C]TGGATATCATGAAAAGATTTTCACAACGAGACCTTTCCTTTGTTATCTTTTTAAGGAAATTATATTTACCATGTGCAGCACTATCTCTGAACATTTGTTATTACAAAATTATTTCATGTGTCACCTGTATGGTAGTGTGTGATGTTTCTCGTGTTTGATATTGGTTATACATATATTTAA |
| >Gm18_9557927 | AGAAGGAAAACAACTCTACTAAACTAGAGTTAATAACATTCAATTTAAGAATTATTTTCACTTGACACATAAATGCTTGAAACAAACAAGTGAACAACGTACGTGAACATATGAAAGCTACACGTTATTAATACCAAACACAAGAATAGCTAGCATGTCCTCATTATGTGGAGAGTGCA[G/T]GAATATTAATGTTTTCATGGAAATCCACCTCCAGCTCCACCTCCAGCTCCAAATCCTCCACCGGCACCACCGCCGAGTCCACCGCCACTGCCACCTCCAAACCCTCCTCCACCACCTCCTCCAAGTCCGCCACCAGCACCGGCACCACCGCCAAACCCGGCTCCTCCTCCAAACCCTGAT |
| >Gm18_9787768 | CCCCATTTGCTAAGAACCCCACCCTTGAGGGGCCTTTCCAAACCTTCCAAAACCGAAAAAGAAGATATTTGAATCCCTGGAAATCTTCTTGCAAAAAACTCAAGGGGGGGGGAGCTTGGGATCAAATTCCTCCCCTTCCCCCTCCCCAACATCACCATACCCCCCACCATAATTGACAAC[A/G]ACACCATCAACATCGCCCTCATCATTAACAGAATGATAGATATCATCATAGTCACCAAACCTTGAAACACTCTTGGGGGTGGTCTTGTTTGACTTGTTCCTATAAATCTGTGACCAATCAGGAATGTTGAGAGGTGCTGATTGCTGGAGAACCTTTGTTTCATGAGAGGAACTAGTACTA |
| >Gm18_9836339 | TCCTATGATAAAAAAAAAATTGCACTTGGAAATATATCTGTAGACTAAAGTTACTTACTTTTCATACTGTTACTTTACCAGGGTGAAATTGCTGATTGAGGAGATTGAAAGGGAAGAAACAGCACTGCGGGATGACCTTTATTCTGCAGATAGAAAGTTTGCTGAATATTACAATGTAT[C/A]TGACAAGCATTTAGTACAATAACCATCTTTCTTATGGACACAGACATTTTCTGAAACTCCCACACTGATAGTGTGTTTGGATAACACAATTGATTTCAGCCCTACAAAATCATGATATCATGAAAAAGTAGAAGCAACTATTTGTTGCTTCACCACTAATTTATTTTTTCTCACCGTGAA |
| >Gm18_10423129 | TATTATTATTATTATTATTCAGAAACTAGCAAACCAATAAAAACTAGTAACTATCATGTGCTGCATCAATAAAAAACGAACCTTGTGTTTGCGAGCGAAATCTTCGAGCTGAGAGCGAAAGGTGGCAAGCTGCTCCTTCATCAAATCGGTTCTGATCTTTGCGACATTTTCACCCAGCA[C/G]CCGGAATTGATCCCTTGCAGCGGCATGCGTCTGCAAACCTCCAATTCCTGGCCTTCTTCTCATTTCCCTTTAGCCTTCGCCGAATCTTTGTTCCAATTTTTTTTGGTTTTTTGCAATTTGGGTTCTCTGGATGGTGCCTTCGTTGATCAAAATTGAAAGAAAGTAGGTTTTTTTAAGGGT |
| >Gm18_10439130 | GTCCTTGATTGAGGAGTTCTCACAAGCATTTCAGCTTGAGTACTGTTACAAAAGTATTTCTGCCGCCCTGTTGTATGAAAGCAAACAAAGCTCTCTCACCAAATAGACACAGCAAAGTTGTATTTGTTTGATATACATAGCAATCCCCTGTCTATTCACTTTTTCCAGATAAAGGGCCA[G/T]AGAAAATATCATCACTTTTGCAATAGAAACACTTTTATACTTACGTTCCTGATTACCAATTGCTTGGGAAGAATAGCTAGCTGATTAAGTTATAGATTACTGATGATTAGTTTTATCTACGTTTATTCTAAGCAAGTATATTTGTTGATTTCTGTAAAATTTATCATTGTATAGGCACTT |
| >Gm18_10587337 | TGATCTGGATCAATTTGTACAGATTTACTGTTTTAGGGATCAAAACAACAAAAGTTAACTACTTTCAAGAATTAAATTGTATATTAACTTATTTCAAATAACTTTTGTTGCTATTATTATTTTTTAAAGTTTATAATTATGGACTTTTCATTTCTTTTGTCAATCACAGAATATAATTT[G/T]AGCAGGAACAGATACAAGTGCAGCCGCAGTAGTTTGGGCTATGACGGCACTGATGAAGAGCCCTAGAGTAATGAAGAAAGCCCAAGAAGAGATTAGAAATGTGTTTGGTGAGAAAGATTTTATAGGGGAAGATGATATTCAAAAGCTTCCTTATCTTAAGGCAGTTATAAAAGAAACAAT |
| >Gm18_10821193 | GAGCAGAAGAAGAAGAACAACGACGACTCAACAACTATGCCACAGAATGGTTCACCATGTCAACGTCCACTGCAACCTGTTCCATAGGGTGTCCTTTCTTGGCCGGTTCATTTGGGACAGGATGCTTCTCTGCTCTCTTGGAAGGCCTTCTTACCTCAGGCTGCCCCTCCGTGACCCGC[G/A]ACCGCAGGCCACCGTCCACGGTGGCGCCTCCATGCATGGATACCCCTTCACCACCACCACCCCTCCCCCTGTGACTCTGACTCTGATTTGGTCAACCTCAAGATCAGCTTGCTTGGTGATTGCCATATTGGAAAAACTAGTTTTGTGGTACTAGTTTTATGTTTTCATCTGATTTCTTC |
| >Gm18_10914698 | CAGCAGACTACCTAAGGAAGATAACACAATGCTATATGAAAATGTTGAACCTGTCGGAAACTAACAAGCAAATGTTCCAACCAAGCAGTTAAATTCTTAAGGCAAATTTATCAGTTTACAACAGCGAACTTTGCTTAAGTTGAGGGCTCAAGTTTGAATTATACAACTTAAAGATAAAT[A/G]GTC |

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| | CAACGTGTCTTGTATATATAATAATAACAAGAAACTTGCTGACAAACTGATCTAGAAACTTCT<br>GAAAGGAGGGAATACACATAAGTTGGACATGAATTACAAAAAACTGCAGGTCAAATGCTGC<br>TTTAATCAGTATTGATGAGTAGATAGAGCGAAATTGGAGACTAATGTCTATTG |
| >Gm18_1092285 1 | GCGTTCGGATTGAGCTTTCTTCAACCGCTTGGTTCGCGGAGACGGAGAGCGCGAACAAGG<br>GGGAGAATCCGGCGAACCGGGCCGAACCGGTTTGGCTGTACTGCGGCCGGAATACTCGT<br>GCTTGTCTCGCGGCGGCGGAGAGATACTACTGCGGTGGCGGCGTGAGGAGGGAGAATGG<br>T[C/G]ACTGGAGTGACGGCCCATGGTAGTAACGGTGGAGGTGCTGTATCAGAATAATTGAA<br>TGTTCCAGAACTGTGGTTAAGTTACTAACATCACAATGTTAAGCATTGTGCATTGTTTGTTA<br>CTGCTTATACGCTCTGTGATCGCGATTGATTCAGATTCTCTATTGTGTGGTGAGTTCAGAAT |
| >Gm18_1120957 2 | TGTGGCCTCACTAAGGGATGAAGCATATAAGCAGCCTCAAGCACATTCAAGTCTTCAAGGT<br>TCAAGCACAAAAATGGTAACCATTGTGGGTTCTTACAATGTCACTCCTAATCAACCAACTCC<br>AAAGGATCCTTCATGGCTATCCGATAGTGACCAAATCGGTGTCCTAGGTCATGTAG[T/C]CA<br>TTGTCTACATATACGAAGCAAATCCCAACAGCAACACCATTGAGAGATTGAGGAACTCTCTT<br>AGCAAGCTTTTGGTGTACTACTATCCATTCGCTGGCAGATTCAGCTTGACAAAAAGTGGTC<br>GCATAGAAGTGGATTGTAACGCAAAGGGAGTGACATTGATTGAAGCTAAAACCTC |
| >Gm18_1120957 4 | TGGCCTCACTAAGGGATGAAGCATATAAGCAGCCTCAAGCACATTCAAGTCTTCAAGGTTC<br>AAGCACAAAAATGGTAACCATTGTGGGTTCTTACAATGTCACTCCTAATCAACCAACTCCAA<br>AGGATCCTTCATGGCTATCCGATAGTGACCAAATCGGTGTCCTAGGTCATGTAGCC[T/C]TT<br>GTCTACATATACGAAGCAAATCCCAACAGCAACACCATTGAGAGATTGAGGAACTCTCTTA<br>GCAAGCTTTTGGTGTACTACTATCCATTCGCTGGCAGATTCAGCTTGACAAAAAGTGGTCG<br>CATAGAAGTGGATTGTAACGCAAAGGGAGTGACATTGATTGAAGCTAAAACCTCAC |
| >Gm18_1193421 5 | ATTAATCCAATTAAAAGTACAAACATCCAAGACATTTGTTTCAAGGTTGTGTCTTCACTGCAA<br>ACACCTAAAATGGTTATGGATTGACTTACAAGATAGGGACTCAATTTCATTGTCAACAGTCT<br>CTTTGATAGTTGTAACCAAAGTTCATACCTTTGTAGGCCAGAGAAAGCTGGCAC[C/G]GTTC<br>CTAGGGAAGCACTGCCTCTAATAAGCCCCTCACTCTCTCATTTTTATACAAACCATCACCAG<br>AGACTACAGCAGCTCCATCCCTAAAAAGTTCCTTTTTCTCTACAAGGATTGCTCCCCCTGG<br>CCAAAATATTCACAAGAAAAACACCCTTCTAAAACATTCTTGTCATACCATAC |
| >Gm18_1194013 7 | ATCTCACACAACATTCAAATTAAACAAAACCACACAAAAAAGCAATCATTATTCCCAATCAAA<br>ATCACACAATTACAACGCCAATCAACACAAACACATATACAAAAACTCCACCTTTTTCCTGT<br>GATCTTGCTGCATTTTCCCCTGACACCCACAAATTCTCCAAAACTTCCCTATGG[T/C]GTGAT<br>CAAGCCCAAACTTAACAAAACCTAGTTCCCAAATTCTACTCCTTCAATAAAATAAAATGAAA<br>CAAATATTTTTACACCCTTACTCTCACCCACATTTCCCCCACCTACCCCTGCTCATTATCAC<br>AAACCCACAACAATCCCAGCAGCTTATTCTCCCTTCTTCCCCCAAACCCTT |
| >Gm18_1194013 8 | TCTCACACAACATTCAAATTAAACAAAACCACACAAAAAAGCAATCATTATTCCCAATCAAAA<br>TCACACAATTACAACGCCAATCAACACAAACACATATACAAAAACTCCACCTTTTTCCTGTG<br>ATCTTGCTGCATTTTCCCCTGACACCCACAAATTCTCCAAAACTTCCCTATGGG[A/G]TGATC<br>AAGCCCAAACTTAACAAAACCTAGTTCCCAAATTCTACTCCTTCAATAAAATAAAATGAAAC<br>AAATATTTTTACACCCTTACTCTCACCCACATTTCCCCCACCTACCCCTGCTCATTATCACAA<br>ACCCACAACAATCCCAGCAGCTTATTCTCCCTTCTTCCCCCAAACCCTTC |
| >Gm18_1311316 1 | TCCGTTAAATAAAGATCAGCATAATATATGCTTTTCGGCTATGTTGATCCGAACAAAAAGCA<br>GCTGGATTTCAAACACCTTAAATACTGCCAACAATGAGCACAAATCATACAATTACAGAAGC<br>CTTATTCTATTAAGTGAGGTCGGCTACATAGAGCCCACGATGTCATTAGACTTAG[C/T]CAA<br>AACCAAATATTCATAGATACAGTCACCAATCATATCATGGCAAATTCAATAGTTTTCTTCCCA<br>TCATGAGCCTTGCTGAAGAAATACTTGAAATAGTCAGAGTACAAAAGTTGTTTATATTTTGG<br>TTCATCACCATCATCCAACACTTCCGACAAAGGACCAATAACAGCATCAGGT |
| >Gm18_1311350 0 | GGACCAATAACAGCATCAGGTGCTGGGTTGACAAAGATTGGAATGGAGATCCTGGTCTTG<br>CTTCTATTTGCAACCACTCTATGCTCTATGCTTTTGCATCTTTCATTGCTCATTATCTGTAGC<br>ACATCCCCAATATTGATTACTAAAGCTCCCTCAACAGGAGGAACATAGATCCAACT[G/A]TC<br>ACCATCACTGCCTCTTACATAAAGCCCTCCAATATCATCCTGTAGAAGGACAGTAATGGAT<br>GATACATCAGAATGAGGACCTACCCCTGCTACAACTTCAGGGTCAGGGCAAGCTGGGTAG<br>TAATTGAAACCCAATATCATTGCCCCCATTAGAGTGTGTTCTCTTGCTTTATCTAAC |
| >Gm18_1311350 1 | GACCAATAACAGCATCAGGTGCTGGGTTGACAAAGATTGGAATGGAGATCCTGGTCTTGCT<br>TCTATTTGCAACCACTCTATGCTCTATGCTTTTGCATCTTTCATTGCTCATTATCTGTAGCAC<br>ATCCCCAATATTGATTACTAAAGCTCCCTCAACAGGAGGAACATAGATCCAACTA[A/G]CAC<br>CATCACTGCCTCTTACATAAAGCCCTCCAATATCATCCTGTAGAAGGACAGTAATGGATGAT<br>ACATCAGAATGAGGACCTACCCCTGCTACAACTTCAGGGTCAGGGCAAGCTGGGTAGTAA<br>TTGAAACCCAATATCATTGCCCCCATTAGAGTGTGTTCTCTTGCTTTATCTAACT |

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| >Gm18_13208705 | TTTAAATTTTTAACATCTATCATGAAAGATAACATGATCCAAGGATATGCATTCAGGATCCAA<br>AAGGTCATATCCAAAAATTTAGTTCATGTAAATCTCAACATTGAACTACTTCAATTTTTAACG<br>GAAAAAAAAAAGGAGAAAAACATTACTAAACTCCCAATGCCCATACTATTTTC[G/C]CAATAA<br>TTCCCATCACTTATATACAACACAAGCGGTGTGACACACAGCTTGATAGTTCTATATTACCA<br>CAAAATTTGAATAATCCACTGTTTGTTCCAACCAATCAGCATTTTGAACGAGGTGGATTCAG<br>TTTCCACAAAATGCCACAATATCTCTTTAACCAGACAAAAGAGCAGAGAT |
| >Gm18_13209936 | ACTCTCCTCAAATTTCTTCAGAGAGACATCATCACCAGGGTTGTTAATTGGATACACAAACT<br>GGGACTTAAGTCGAGGCTTACCATTTGGCAAGTCTTTTGTTGCAGGGTAAACTGTTCCAGG<br>AGTTTGCATCTCGTCAGATAGCTTCATCGGGGGTAGGATTAGGCGATGGTTTATATG[T/C]AC<br>TCTCATTATTTGGTGAATCTGTTTTCTTCATATGTCGTCCGCCATAATCAGATGAATCACAG<br>GATGATAAATCACTGCCACATTCAAAACGTACAAACTTGTTCCTCCTCTTAGTGTATGTGGT<br>CGATGGCCAAGGTGAAACAGAAGCTGTATTCTTGTCCAAACTGTGAAGACTCCC |
| >Gm18_13426557 | TCTGACAACACAGTAGAGAAAAACAAGAAGGTTGATGCCACCTTGCTGAAGCTAACACCAG<br>AACAAGTGGGGAAGCTGAAGAAGAAGGCCAATGATGACTCAACAAAAGAAGGGTCAAGAC<br>CTTATAGCAGATTTGAAGCTATTGCTGCACATATATGGAGATGTGCCTCTAAGGCTCG[C/T]<br>AAACTAGATAAGAATCAACCAACTCTAGTTCGGTTCAATGCCGATATTCGCAATAGACTAAT<br>TCCACCTCTCCCTAAGAATTATTTTGGGAATGCTTTGTCCTTAACAACAGCATCATGTCACG<br>TTGGAGATGTCATATCAAATTCTTTGAGTTATGCTGCTCAGAAGATAAGGGAAGCA |
| >Gm18_21030712 | TGGATATAGCTCTCAGGGTTCTGGATCCACACTTATTATGCCATTTCTTGATAACCAGCTGA<br>AGTCTCCTAGCCCACTCCTGTTACCTGCGCAGGTGAGGTTCTGAAATGGGTGTTTTGCTTG<br>AAATATTTGATTCTTCAAGTTTATTGACTGACACCTACATTAAAATTATGATTTCT[G/A]TCAG<br>GATGCTGTTACTCCATTGTCTGAAGCAGAAGCAGTTGATCTGGTCAAAACTGTTTTTGCATC<br>TGCAACTGAGAGAGATATATACACTGTAAGTTTGTGCTAAATACATAATTACCAATTGACTG<br>TAGGATGAACTTGTAACTTACTGTGGATGCTTTTACAGGGAGATAAGGTTGA |
| >Gm18_24830251 | TTTGAAAATCGAGCTTAGTGCATATTTTCATGTTTATCTTGTTTCAATCTTTCCCTAACTGCC<br>TCTTGAGGTTTAGATGTCAAAGTTTCTAAGTATCCTTTTAACAGCTGAGCTCCAGTTCAGAA<br>GAGAAGACTGAGGTGGACGCATTCAATTCCTCATTAGCTTCACTAATTTCATCA[C/T]GTCC<br>GATTCATGTCAAATTCGTAACACACACAAATCATGTGTGTGTGTGCCTCATTTACTCAATTTT<br>AAATTGCCATCTGAAATTCCAATTGTGTACAAAATGTTGTGGCTGCATTTGCCTGAGATTTC<br>AGCAATCACAACACAATTGCAACTGCAATCACAATCTAAGCCATGCGCATT |
| >Gm18_48766910 | CAATTTACAATATTTATCACTGAGCTCGGTGATGGTATATTGACTAATGTATTGTGTGGCTC<br>TGTCTATTTGTTGAAGACTCTAAACATCCTACGGTGGGGGTTGCCTTAACAAGCATTGCTCT<br>TTTGTATCGGCGTAAAGCAATCCAGGAACATTCAAGTTCGCTGTTAGTTCAAGAG[A/C]TTG<br>AAACTCTCCAATCGCTGGTTTCTTAACTATGGAATTTGATCAACTTTAACTTTAGTTCTCATT<br>CTGAAGCATAGGTGCTATGAACTGATATATTTTTGCTGCTATATGCAAACAATTCAAACTATT<br>TTTATTGTAATTCAAACAATTCTTATAATATAAGAATGATTGACAGGGTCT |
| >Gm18_53015178 | CCCCGTAGGTATCCAGCTTCAAACATTTGATGCATCTTCCTTTGTTGGTAATGCAGAATTGT<br>GTGGAGCACCTTTGCCTAAAAACTGCAGTAATGAAACATATGGGCTGCCATGCACATTTGG<br>TTGGAATATCATTATGGTTGAATTGGGATTTGTTTTTGGCCTTGCACTTGTTATTG[G/T]TCC<br>CCTTCTGTTTTGGAAGCAATGGAGGCAATGGTACTGGAAACGCGTGGACCTCATTCTGTGT<br>CGTATCTTCCCACAGCTGAATCTTGAATATGAAAGCAGTGGAGGACATTGCTATCAAGTTTT<br>AAGGTGGAGGCATTAGTCATGAGGGAGTACTAAAATGCTAATAGCAAATCAGCC |
| >Gm18_60548045 | GGGAATGAAGATATAATCCGTTTTAAAAAGGTTGACTTTTCTTCCCCAAGTGCTTACACGCT<br>GAAATGCTGCTTTACCATCACAAGCAATTGATGTATCATTTCTGCTTAAACCAGCAAGCTTA<br>GCAAAGAAAAAGCAATTGAAAAAGTGAAACCTGTCTTGTTTATCGCTTGGAAGTT[T/A]ATTT<br>TTCAAATAATTGATATAAAAGTCAATGATAGTATCATTAAGGCATTTCTCAGGCTGTAAAAGC<br>TCAATATCGCTCTTTTTGATACAAACAGCATCAGGGTCCCCCTTTGGATACGCCTTTTTAAA<br>TGCAGCAGAATCATGCTCCACTATCTGGTCTCCCAAGTTAATTTCATCTTC |
| >Gm18_60548057 | ATAATCCGTTTTAAAAAGGTTGACTTTTCTTCCCCAAGTGCTTACACGCTGAAATGCTGCTT<br>TACCATCACAAGCAATTGATGTATCATTTCTGCTTAAACCAGCAAGCTTAGCAAAGAAAAAG<br>CAATTGAAAAAGTGAAACCTGTCTTGTTTATCGCTTGGAAGTTTATTTTTCAAAT[A/G]ATTGA<br>TATAAAAGTCAATGATAGTATCATTAAGGCATTTCTCAGGCTGTAAAAGCTCAATATCGCTC<br>TTTTTGATACAAACAGCATCAGGGTCCCCCTTTGGATACGCCTTTTTAAATGCAGCAGAATC<br>ATGCTCCACTATCTGGTCTCCCAAGTTAATTTCATCTTCTGAGGGATTGAA |
| >Gm18_60711443 | GCACTGTCACTCACATCATAATTATGAAGCTGGCAATATTGATTCAATATTTCAAGGGAAAT<br>AAAATAAGGAGATGGAGTTCTCCAACTTATCAAGTTCATTCAGAAGATACACACAAGGGGG<br>GAATGGAGGGGAGAAGAGAGAAAGCGAGGTACTTGGAAGATTTGGCTTAAGGTCAA[C/T]G |

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| | GTCAACTGAACAGCAATAAGGGAATCCTCATGATCTCGGGTACCCAATACAGCTCTCGAGT<br>CACCAACATTTCCAATAACAAGGTTCAGCCCCTGAAAGAACATCAGTAAACCACATGTAAAA<br>AGCAAATAAGAAATAATCAAGAGAACATTACATTGTAATTTATATTTCTTACCTGC |
| >Gm19_<br>451849 | TGAAGAGGACGTGATTGCCCCCAAACAGGGACTCAACTCCACAGGGCTACAAGTCACAGC<br>CTCTGCCATGGGACTCATCTCCACCAGAAAAAGTGCTGCCATCACCACTATTGCAAACCCA<br>CACACCTTCTTCATCATATGCATGCTTTCTTGATTTTATTTAATTCTCTACTGAGTGC[C/T]AT<br>TTTCTATGTGCTCAAACTATGCTTTTATATACAAACAATTCAAACACGGTCTGTGGGGTGGA<br>CTCAAATCTAATTAACATCTAAGGTCCCACTTGTTGTGCTAAAACATAATGACAATAAGTGA<br>TAAAACCCTGGCTGTGTTCACACTCAATCTTTGCTGAAATGGTAATACGGAAAG |
| >Gm19_<br>829824 | ACAACTGCGACTTAGTTCATCCCTTCTCAAGCCACCGAAGCCTCACTTTTGTATTCTTCCCT<br>CTCCCAATATTTTCTTCTTCTTCTTCTTATTATTATTATTATCATTTTTTCTATATAAACCTCAC<br>CTTAATTACTCTACTCTTCTCTCTAATTACAATTTTCTATTTTGTTTTAATT[G/T]GTGAAATTA<br>CTTGCATAGATAGATAATCATGGCTATGATGAAACGTGCTGCTTCCTCTGCGCTTCGCTCTC<br>TTATTGCCTCATCCTCCACCTTCACCAGAAACCTTCATGTAAGCCCAATCAAATGTTACAAA<br>TTAATTGCATGTTTTTTTTTAAAAACATTATTATTTTCTCAAACTCA |
| >Gm19_<br>1567798 | TTGATTTTACAATTGCAGCACAACCACACTACAATTTAAAACATTAGTGAAAAAAGAGGGCA<br>TATCTATATCATTATCAAGAGAAGATGAACATAGAAAATGAAAGATTATGCCTATAATATTCT<br>AAATAAAGCAGTAGAGAGCAAAAAATTGGAAAACCAAATATGAAAAAAGCAGGC[T/C]TACC<br>TTGGATGAGCTGCAAGCTATCTTACATTCCAATCCGTTAACTACTTTAACACCTTCCATGGC<br>AGAGCATATTGCAGAAAGCTCATCTAAGTTTCCATATTGGCGTTTGTTTCTGCATATATCAA<br>AATAAAAAGTAGAAGAAACTCTGTTACCTAGTTGAAAAGGATATGCAATATT |
| >Gm19_<br>19928395 | CACAAATGAAAATACCTTCAGATCATGAATTAGTTGGGCAAGATCTTCAATTGAATAAATAT<br>CATGATGGGGAGGTGGACTGATAAGTCCTACACCGGAAGTTGAATTCCTAGTGACAGCAAT<br>GTCTCCTATAACTTTGTGACCAGGAAGTTCACCTCCCTCACCTGGTTTTGCTCCCT[G/A]AA<br>GATGACAATTATAATGTCAAGACACTACCATGGGTAAGTGAAAAACTATAGCTTTTATTTAA<br>CCTTACCAAAGGTCAAATGCAGGTATACTTACGATACAACACAAGAGCACCCAGAGGTGCC<br>TTGAAATCATATAGCATCATCTTCCTTGAATATAAATTCATAAACAATAGAAATT |
| >Gm19_<br>34933617 | TGAAACCATCACTCCACTTGGAGACCCTACTTCTGTCACCTAAAACGCGCACAAGAGAACA<br>AAAAGTAACCAACAGACACCCACACACAAAGACACAAACACGCAATTCTACTATTCAACACT<br>TCTATTAAGGTCATAAGCTTCCAGAAACTAAGGAACACAATATAAAATACTACCTT[C/T]CCG<br>GAAGATCCACCAGAATCTTGAGCGGCTGAAGACGACGAACCTACCGACAAAATCGAATCA<br>CTAAATCAGTTAATCAAGCAGAGCACCAAACAACGAAAAACCATTTAAACACACAATCTCAA<br>ATTTAGACAATTAAATCCCCAAAACAAAATAAAGCAATTAAACACCACAATTTCG |
| >Gm19_<br>36856861 | ATGGCGTGACGGTCTTGCTCGTGCAGACGATGAAGGTCCTGGCTATGTATTGCCAAATAGA<br>ATTATTCTTGAAATCGGTAAATGAAATTTATCTAGACTTCTATATTGTCTTTTGTCTGATAAGT<br>AGAACTTTTGCACAGCAAACATCACTTCAGTTTTTTTTTTTTTTACCCATTTCA[A/G]AGCTAA<br>CCAGATGCCTGTCATTATAAGCAATCTACGGCGAATAGTAGGAAGGACAAAACACCCATAT<br>GTTGAGCGCAGCCTTGATGTCATTGTCAACATTGTCAGACATTCTATGCAAAATGCTGCTG<br>CCTTTGAAGAGGCTGCACTACGTTTGAAAGAAGAACATGCTGCAAGTGTAAG |
| >Gm19_<br>43425407 | AAAAATGTGATAAAAAATAGTACATTCCTAACATTTCTCTTGTCATCATAAGACCCACCTTGG<br>GTCACTAGCATGATGCAGGGATATCTAAGAGAAACTTCTTTCAAGAGATCAGGATTTGTTCA<br>TATCTATCTTGCAACTATATTTAAGCAGAACAGAGTATCATAGCAAATCTTGTT[G/C]TCGCC<br>ATTTTAGTAATGTAATTCACCAAGTAAAACATAATTTTCAATCATCACTACAACAAGCTTTGG<br>AATTCTCCATGGGACCAATTCCCTAACTACAAAACAAACAGTCCCCACTGCTACTACAAAAA<br>ATTTAATTTCCATCATCACCAATTTCCTAATTGCTCTCTTAGCTGAGCAT |
| >Gm19_<br>47038836 | TCAGCAGCATTCATAGCATTTGGAAGATCTTGCTTGTTTGCAAAAACTAGAAGCACAGCATC<br>TCTCAACTCATCCTGACAAAAATTATAGGCAGCCATACAAGAGAAATAACAAAATTAAGCTA<br>GGAAAACGGGTCCTCTAAACTAAACTAAGCCAATTTCTCATATTGAATCGTTTAC[G/T]ACCT<br>CATTCAACATCCTGTGCAGCTCATCCCTAGCTTCAACCACACGATCCCGGTCATTGCTATC<br>AACCACAAAGATAAGCCCTTGGGTATTTTGGAAGTAGTGTCTCCACAGAGGACGGATCTAA<br>TAGGAAAAAGTTAGAAAACATTCGGTGTTCACTACTGTATCTCAAAAATTTAAT |
| >Gm19_<br>50413406 | CCTCACTCTCTTGCCCATTTTCCTTTCTTTCTTTTTGCAGGCCCGCAAAGTTATTGCAATGTT<br>GAGTCAGGATTTTATATTTGATGGCTGTACAATTTTGGTTCATGGTTTTTCCAGAGTCGTCT<br>TTGAAGTCCTGAAACTTGCTGCACAAAATAACAAACTATTTCGGGTCTTCTGCA[T/A]TGGTT<br>TTTGCCCTCTTACTCTCATTATTTATATGTAACACAAGCCTCATTTTCATCTTTAGACTGTCT<br>TGGCAAAAGCAAAACTAGTTCATAACCCAGCTGAAAATTAAAAAGTTAATTGAAAGCTTATA<br>ATCTATTATAAATTAGGACCTAAGCAGCTGATTGAATTACATGTAAATTG |

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| >Gm20_12115300 | TGTTTTTGTGGCTATTATACAATATACATATTGTTAGCCAATCTTAACTGTTGTAAGGGCTTA<br>ATCTATAAGGTGTACCATTTGAGATGCATTGTGGTGGAATATTGATTATATGCCATATCTAG<br>CATCTTTTCTATCCTTGCCTATCATGTAATACGACTTTTCTTTTCTCAGGAGCT[C/T]ACAAGT<br>CAGTTTATGCCCCCGAACCTTTTGATGTTGGACGCGTATTGCAGGTTGATATTATTTTAGAG<br>GGCCACCAGATCACATTGTCAACCACTGGTCCAATTGATCCAGGTTGGGTTCCCATGCCAA<br>GTTGTACACTTTTAATTTAGTATTCATTCACAAGTATCATTTCTATGTATT |
| >Gm20_25068927 | AACAAAATTGCATAATCATATGCCTCAATTGGACACAAATGACCTATCCAAAATTTTGTTCGT<br>GACATCCCAAAATAATATATACATAATGGATCAACAGCAGCAATTTAAAATCTTCGAAACAA<br>AAATTGAAGTTAAGAGGAACCCTTATATCATGTTTAAATAATGGCTGTGTTGGC[G/T]TGTTC<br>ATTCATTTCCCCCATAAACTATGGCAAGTCCATTTACCCCATCACTCATTCATAGGCACCTC<br>AGAGCTGACTTGTTCATCGTCATCCTCACTCTTGCTCTCTTCAGCATCCATTGTCGCTCCCT<br>TTTGGAAGTAATCAACTTTGAAGTCATAATCACCATCCATGGGATCCGATG |
| >Gm20_26485526 | TTCAAAAACCAAAGAAAATCTCACATTCAAGGAACGTGAGTTACGTGGCTCACATGTAAAC<br>CAAAAATAAATCAAAATTTTTTTTCTTCAAAAAAAATAGCTCTCCACCTTGGCTCCTTCTGCA<br>AAAACTAACGCACACACATCACAGTTTCTTTCGCACCACTAGCACTTCATTGAGT[T/C]CATT<br>TCACAGTTCCTATTCGTACCAAATGACAACCACCAATACGAGTTTCTCTCTCTAGAACCACC<br>GAAGCGAAGAAGAAGAGAGAAGAGAATCACGGTTTCGCCATGGACGCGGCATCGCAGCTC<br>GTCTCCTGCGGAATCGATCCCTTCCATCGCGCCTCCTCTCCTTCCCCGCGCCAC |
| >Gm20_26546196 | AGTACTTTGGTTATTTAGAGAACTTGGGCCATTTGTCTGGAAATTGAATTTGAGGCTATATC<br>TTTCATGTAGGAGTGAGTGAGTGGTCCTCCAAGGAGTTGTGCGTTGACAATTTGGGGCTTG<br>TGGCATAAGGAAAAGACACATTGTGATTCTTGCAATAGTTGCTGGAGTTTTCAACT[G/A]TAC<br>ACCAAAGAATTTGTTGATTGTGTTTCAATATATGTGGAGAAACCATTAACTCAGGATAGTTG<br>CAATCACAGCGAGCAACTTTTATATTCATGATTGCAGTTTAAATTCACCTTTGTTTGGTTATA<br>TAATTCTTTCCCATGATTTTATTCATGTAAATAAACTGAAGAATTTGTTTAC |
| >Gm20_26658299 | AAGAAAAAGATAACTGATGTGGTCACAAAGGGAGAAATGGAGTGAAAAAGATATGGAAAAA<br>AAATTAAGTGTATGTTTATAATTACCCAAAATATATCACAATTTAATACAAGTCTAATATGAAT<br>AGAAAGGATTACTTGAGCAGTGGTTGACATTATCACTACCATGGAACAAAGCTC[C/T]TGAG<br>ATTTCTTATTTGATGACCAAATATAGAGAGTGTGAAGTAACTAATTCTAGCGAGCATCCTTG<br>GATAAAAGAAGATCATCCACTTTCCGGGCATTGCATAGCTCATCAGCACAATCACCACTCT<br>CAAAAACAGCAGCTGCCCCCATTCCAGTACCTGCTCACAATTGACAACAGCCA |
| >Gm20_26664906 | TGAAGTGAGTATATAAATTCAGACAGAGAAAAGGGAAAATATAACAAACACATTGATCAAAT<br>ACCTCATTTATTTCAAAAAGATCAATATCATCAAGCTCTAGACCTGCAGCCTTAACAGCAAC<br>AGGAATTGCAGCAGCAGGACCAACACCCATTATGGCAGGATCAACACCAACTGCT[A/G]CG<br>AAAGTCCTACATGACAGCCAAAAAATAATTTCCTTCAGATTAAAATAAAGCAGAATTTTTATC<br>CTAATCAATTTCACTTTTTAAGTACAATGAAAACATGATTTATGATTTTAGGATAGCTTACAA<br>TTCATTAAGAGAAGGATAAATATAAAAATATGAAATTCCAGTTCCTGAAAGA |
| >Gm20_26666320 | CATCAACAGAAATGGTGACAGATTTCTCCTCACCAGTTTTTGGGTCCACAATCTGTTGGGA<br>AGAAAAAAGCTCTATTCAGCACCCAAGAACCAAAGGAGAGATTCAATATACCCTGTAATGG<br>CCAATACCTTAGTGGTAACTGGGACAATTTCATCTTTAAATTTACCAGAAGCAGTAG[G/C]TG<br>CGGCAGCTCGCCTGTGAGACTCAACCTATCAACATTATTAAGAAGATTCGGTTAAGAGTTG<br>TTAACATATAAAATAGAACAAAATGTTGAATTAATTTAAAACATATATCTAACTTACTGCGGC<br>CTGGTCTTGTTCCTTCCTTGAAACCCCAAAGCGCTGTGCAACATTTTCGGAGGT |
| >Gm20_26702577 | CATATTCAAAAAATATTAAAACTATCCAAACAATGGGTATGTATTAATCTGGAAGACCTATGT<br>AAACCTAGAATCCAAGATCTAAATCCTTTGCTTCCAAAATCAATTTGGAAAGTTTGAACCCA<br>TAAAAGAGAAGGCATAATCAGTGCCAGAAAGAAAAAATGACAAAGAAAAGAAGT[G/T]CCAA<br>GAAATCACATCAACCACACCAATAATTTTCAACAAGAATTTTCACTCAAGTGCACGGGGATG<br>ACGGAGCCTCCCATCTAATGCATATATGTGTCCACCATGGAAAAACTTCAATTCATCGGTAT<br>GATTCAGGGCGCTTTGGCTTGCTTTGAACAACAGCTTCAATCTTCTCCATCA |
| >Gm20_26702622 | AATCTGGAAGACCTATGTAAACCTAGAATCCAAGATCTAAATCCTTTGCTTCCAAAATCAAT<br>TTGGAAAGTTTGAACCCATAAAAGAGAAGGCATAATCAGTGCCAGAAAGAAAAAATGACAA<br>AGAAAAGAAGTCCCAAGAAATCACATCAACCACACCAATAATTTTCAACAAGAATT[T/A]TCA<br>CTCAAGTGCACGGGGATGACGGAGCCTCCCATCTAATGCATATATGTGTCCACCATGGAAA<br>AACTTCAATTCATCGGTATGATTCAGGGCGCTTTGGCTTGCTTTGAACAACAGCTTCAATCT<br>TCTCCATCACAACAGGAGTCAGTAATGGAATGACATCGATTGCTTTCATGTTCT |
| >Gm20_26702784 | AATTTTCAACAAGAATTTTCACTCAAGTGCACGGGGATGACGGAGCCTCCCATCTAATGCA<br>TATATGTGTCCACCATGGAAAAACTTCAATTCATCGGTATGATTCAGGGCGCTTTGGCTTGC<br>TTTGAACAACAGCTTCAATCTTCTCCATCACAACAGGAGTCAGTAATGGAATGACA[T/G]CG |

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| | ATTGCTTTCATGTTCTCTTGAATCTGAGCAAAACAAAACAGAAAAAATAACATAATATTACAA<br>TGGCAAGTTCATTCTTGCAAGTTATATCTCAAATTAAGAATGGCATCAATTACTTTCGTGTTC<br>CATTGAACAAGTTGAATCTAAGAAACATGAAACAGAAAAAAAAAAAAAAATA |
| >Gm20_<br>2670654<br>9 | TACACCGTTTTCAACACAATCATATCAAGAATCAACAAGTGCGTAAGAGAATGTGGTACTAA<br>CACTCCTCCAGCGAACAAATACCATGTGCCTACACAAAAACACATTACTAGGATTTCTCATA<br>GCAATGATAAAATGTTAATAGCATTTATAGCTAAGCAAAAACCTTGTGCCTGGAC[C/G]AGA<br>GGTTATACTCAGGCTGTTCAACAATAGGACCAACAAGGTCCAATCTCTGTGCCACAGCCCA<br>GGCCTCGGTGATCTGCTGAGCAGACCACTCGCTAGTGCCCCAGTAGAAGGCCCAGCCCCT<br>ATCAATAACATGATTCATGGCCCTCACGGTTTCCTCGATCGGAGTAGAGGTATCCG |
| >Gm20_<br>2670726<br>4 | GTTCTTGTATTGCATCTTCTTTGAACTGGATTTGGATTTGGATTTGGATCCGATTAGAGGGG<br>AAGAAGGAGGAGGAGGAGGAAGGCACTTCGGGAATCGTCGAATCTAGCAGTAGAGAGAG<br>TGTGAGTGAGTTTGAGAACGGAAAGAAAGGGTGTGTGCGAGTGACAAAAAAGATGGAT[A/<br>G]GGTGATCGGTGATCCGTGGAATTTTTTCTACGTGTAAACTGATCGAGATGGGACTTGGG<br>AAGAGCACGTGACATTCAATTAATTAGTACCACATATGTAGTGACATGGATCAAGATATTAT<br>GTAATGGCATAATTCTAAATTTCTTTTTGAGGTAATAAATACCATACGTCTAAGATATT |
| >Gm20_<br>2683150<br>0 | ACAACCAGTGACTAGTGAGTGGTGTTAGTTAACGGCGTGAGAGGGACGGCGAAGACCGAA<br>ACAAGAAAAACGATCAGTTAAGTAACGGCGTGAAAGGGTTGGGCGTTTGTGGGTTTAGTGT<br>CTATAAAAAACCGTTATGTTGGAACCTTCTGAGTCCACTCCACCCAATTCTCTCTCTC[A/G]T<br>CTCTTTCTCTCTTCAACATTCTCTCTCACCAAAGCAACAACACACACACTGAGAGCGAGGG<br>GAATTCAACTTTCTGCAATGGCGGTTTCTTCTTCTTCTGCAACAAAATGGGTCGTCTTCTTG<br>CTTCTGGCGCTGCTTATTCGAGAAGAAGCTATGGCTACACCACAGATCTCTGACCT |
| >Gm20_<br>2683152<br>6 | AGTTAACGGCGTGAGAGGGACGGCGAAGACCGAAACAAGAAAAACGATCAGTTAAGTAAC<br>GGCGTGAAAGGGTTGGGCGTTTGTGGGTTTAGTGTCTATAAAAAACCGTTATGTTGGAACC<br>TTCTGAGTCCACTCCACCCAATTCTCTCTCTCTTCTCTTTCTCTCTTCAACATTCTCT[C/G]TC<br>ACCAAAGCAACAACACACACACTGAGAGCGAGGGGAATTCAACTTTCTGCAATGGCGGTTT<br>CTTCTTCTTCTGCAACAAAATGGGTCGTCTTCTTGCTTCTGGCGCTGCTTATTCGAGAAGAA<br>GCTATGGCTACACCACAGATCTCTGACCTCAGGTTGAGACACACGCACAAACTCT |
| >Gm20_<br>2683514<br>8 | GAAGTTGGGATTTTTCTCTTGTGGAACTGGCAACCCCATTGATGATTGCTGGCGTTGCGAC<br>CCCAACTGGCAACGCAATCGGAAGCGTCTTGCAGATTGTGGCATTGGTTTTGGCCGAAAC<br>GCCATCGGTGGCCGTGATGGAAAATTCTATGTGGTGACTGACCCCAGGGATGATGACC[G/<br>C]TGTGAACCCGAAACCCGGCACTCTTCGCCATGCTGTGATCCAGGATAAGCCATTGTGGA<br>TTGTGTTCAAGAGGGACATGGTTATTCAGCTGAAACAAGAGCTGATCATGAACAGCTTCAA<br>GACAATTGATGGTAGAGGAGTCAATGTGCACATTGCTAATGGAGCATGCATCACAATTCA |
| >Gm20_<br>2683524<br>8 | GGCATTGGTTTTGGCCGAAACGCCATCGGTGGCCGTGATGGAAAATTCTATGTGGTGACT<br>GACCCCAGGGATGATGACCCTGTGAACCCGAAACCCGGCACTCTTCGCCATGCTGTGATC<br>CAGGATAAGCCATTGTGGATTGTGTTCAAGAGGGACATGGTTATTCAGCTGAAACAAGA[C/<br>T]CTGATCATGAACAGCTTCAAGACAATTGATGGTAGAGGAGTCAATGTGCACATTGCTAAT<br>GGAGCATGCATCACAATTCAGTTTGTTACCAATGTCATCATCCATGGCTTGCACATTCATGA<br>TTGCAAACCTACTGGAAATGCTATGGTGAGAAGCTCCCCAACCCACTTTGGTTGGAGG |
| >Gm20_<br>2683525<br>3 | TGGTTTTGGCCGAAACGCCATCGGTGGCCGTGATGGAAAATTCTATGTGGTGACTGACCC<br>CAGGGATGATGACCCTGTGAACCCGAAACCCGGCACTCTTCGCCATGCTGTGATCCAGGA<br>TAAGCCATTGTGGATTGTGTTCAAGAGGGACATGGTTATTCAGCTGAAACAAGAGCTGA[T/<br>C]CATGAACAGCTTCAAGACAATTGATGGTAGAGGAGTCAATGTGCACATTGCTAATGGAG<br>CATGCATCACAATTCAGTTTGTTACCAATGTCATCATCCATGGCTTGCACATTCATGATTGC<br>AAACCTACTGGAAATGCTATGGTGAGAAGCTCCCCAACCCACTTTGGTTGGAGGACAAT |
| >Gm20_<br>2683553<br>2 | TGGCTTGCACATTCATGATTGCAAACCTACTGGAAATGCTATGGTGAGAAGCTCCCCAACC<br>CACTTTGGTTGGAGGACAATGGCTGATGGAGATGCCATCTCCATATTTGGCTCAAGCCACA<br>TTTGGGTTGACCACAACTCCTTGTCACACTGTGCTGATGGCCTTGTGGATGCTGTCC[G/T]G<br>GGCTCAACAGCCATAACTATTTCCAACAACCACTTCACCCACCACAATGAGGTACTACTACT<br>TTTCACTGTAGTGCTTCTGTTTTCTCTGTGTCAAACTGCACTTTTCCCCTTCTTGTTGTTGCA<br>TCATGGCTTAAGTTGTTGTCTTATTTCTTTTCAAATTCAGGTGATTCTGCTGGG |
| >Gm20_<br>2683664<br>8 | GGGAGATTTGTTGCTGAATGGTGCCTATTTCACACCATCTGGTGCTGGAGCCTCAGCAAGC<br>TATGCAAGAGCCTCTAGCTTAGGAGCAAAATCTTCTTCCATGGTTGGTTCCATGACTTCCAA<br>TGCTGGTGCACTAGGTTGCAAAAGAGGCAGTCAGTGCTAGCATATATTATCATCAA[A/G]CA<br>CAACCATGTGAATGAAAGAGGTCATCCATTATTTTTCTTTTGTTGTTTGATTCTCAAGGTTTT<br>ACCATATTATAGTAGAACATCATCATCATCATATATCCATAATCCATTGCTTTCTTTCCTCAC<br>ACCTCCATCATCATATCCTGCAGTATTCTTGACAAGTGTACATTAAATTACA |

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| >Gm20_26880242 | AACCTGCAATTTAATTTAATACAAGATTTTGGACACATACCTAAATTAGGGCTGAGCTCCAG<br>TTAAGGAATTAAGATGCACTTCAACAATGTTAAAGGAACATGACGTTGAAGCGATATAGGA<br>GACGGCGGGACAGCTTGGGATTGATGAAGGGCACGATCTCAGTGAGGGCGCAGAGG[C/A]<br>ATTGTTGGGTTAGTCAGTGAAGGATTCAGAGAGTGAATGAAGGACTGAGTCACTTTAGGTG<br>CAAAAATCAGTAAGCAAACAAAGACGATTTTTGGGTTTGAACCGTCTTTGTACAAAACCTAC<br>AATTTACATGTTTTCCATCGCGCCTTTATTTACTTATTATACATAGACAATTATATG |
| >Gm20_26880264 | AAGATTTTGGACACATACCTAAATTAGGGCTGAGCTCCAGTTAAGGAATTAAGATGCACTTC<br>AACAATGTTAAAGGAACATGACGTTGAAGCGATATAGGAGACGGCGGGACAGCTTGGGAT<br>TGATGAAGGGCACGATCTCAGTGAGGGCGCAGAGGCATTGTTGGGTTAGTCAGTGAA[C/G]<br>GATTCAGAGAGTGAATGAAGGACTGAGTCACTTTAGGTGCAAAAATCAGTAAGCAAACAAA<br>GACGATTTTTGGGTTTGAACCGTCTTTGTACAAAACCTACAATTTACATGTTTTCCATCGCG<br>CCTTTATTTACTTATTATACATAGACAATTATATGGAAATGTCGTCGTTGTGTTTCT |
| >Gm20_26880300 | CCAGTTAAGGAATTAAGATGCACTTCAACAATGTTAAAGGAACATGACGTTGAAGCGATATA<br>GGAGACGGCGGGACAGCTTGGGATTGATGAAGGGCACGATCTCAGTGAGGGCGCAGAGG<br>CATTGTTGGGTTAGTCAGTGAAGGATTCAGAGAGTGAATGAAGGACTGAGTCACTTTA[G/T]<br>GTGCAAAAATCAGTAAGCAAACAAAGACGATTTTTGGGTTTGAACCGTCTTTGTACAAAACC<br>TACAATTTACATGTTTTCCATCGCGCCTTTATTTACTTATTATACATAGACAATTATATGGAA<br>ATGTCGTCGTTGTGTTTCTCTTTATTACAAAAATGCCACCGTGAACTGTCTTAGA |
| >Gm20_27300839 | AAATTTTCTCTTCTTTTGATTCAACCTAACCTTCTGAGACCCTAAATATTAAAGATTCTCAATT<br>CTCGAGACTTCACAAGTCATAACTATTTTCACTTGCAATCGTTTATTACTCTCAACTGCCCTC<br>TTACTTTTTCTTTTATAAGATACCCCTTTTGCATGCATGTCCTCCACCTCAA[G/T]ACGTTTAT<br>TCGTTACAGAAATTAAGCTCAGTGTGTGTGAGTGAGAGAGAGAGAGAGAGAGATGGGAAAAT<br>GGGATACCTTGCTTGTGTTGTTTGTGTTAGTCACAGTGCATGCAACTGCAAGTGCACGTGA<br>TGTGCCAAAGGGTGGTGGTGGTGAAGAAGAAATCCTAGGTGTGCATGCAAG |
| >Gm20_27300840 | AATTTTCTCTTCTTTTGATTCAACCTAACCTTCTGAGACCCTAAATATTAAAGATTCTCAATT<br>CTCGAGACTTCACAAGTCATAACTATTTTCACTTGCAATCGTTTATTACTCTCAACTGCCCTC<br>TTACTTTTTCTTTTATAAGATACCCCTTTTGCATGCATGTCCTCCACCTCAAC[G/A]CGTTTAT<br>TCGTTACAGAAATTAAGCTCAGTGTGTGTGAGTGAGAGAGAGAGAGAGAGAGATGGGAAAAT<br>GGGATACCTTGCTTGTGTTGTTTGTGTTAGTCACAGTGCATGCAACTGCAAGTGCACGTGA<br>TGTGCCAAAGGGTGGTGGTGGTGAAGAAGAAATCCTAGGTGTGCATGCAAGT |
| >Gm20_27300882 | AAATATTAAAGATTCTCAATTCTCGAGACTTCACAAGTCATAACTATTTTCACTTGCAATCGT<br>TTATTACTCTCAACTGCCCTCTTACTTTTTCTTTTATAAGATACCCCTTTTGCATGCATGTCC<br>TCCACCTCAACACGTTTATTCGTTACAGAAATTAAGCTCAGTGTGTGTGAGTG[A/G]GAGAG<br>AGAGAGAGAGATGGGAAAATGGGATACCTTGCTTGTGTTGTTTGTGTTAGTCACAGTGCAT<br>GCAACTGCAAGTGCACGTGATGTGCCAAAGGGTGGTGGTGGTGAAGAAGAAATCCTAGGT<br>GTGCATGCAAGTGCACCACATGCAGGTGTTGGTGACAAGAAGCACTTTTTGTTT |
| >Gm20_27300889 | AAAGATTCTCAATTCTCGAGACTTCACAAGTCATAACTATTTTCACTTGCAATCGTTTATTAC<br>TCTCAACTGCCCTCTTACTTTTTCTTTTATAAGATACCCCTTTTGCATGCATGTCCTCCACCT<br>CAACACGTTTATTCGTTACAGAAATTAAGCTCAGTGTGTGTGAGTGAGAGAGA[C/G]AGAGA<br>GAGATGGGAAAATGGGATACCTTGCTTGTGTTGTTTGTGTTAGTCACAGTGCATGCAACTG<br>CAAGTGCACGTGATGTGCCAAAGGGTGGTGGTGGTGAAGAAGAAATCCTAGGTGTGCATG<br>CAAGTGCACCACATGCAGGTGTTGGTGACAAGAAGCACTTTTTGTTTGGTGGGG |
| >Gm20_27301847 | TGTCTTTCAACATTGTAACGATCCTTGATATCATTCTGGGGCTTTGCATGCATGCATGGATA<br>TGTTTTTGTTAATGTAGCTAGGGCTGCCAATATTAATTGTTGTTTAGGTTAGAGAGTCTTAG<br>CATTTGATTATTTCATTTGATGTTATTTTCATCTTCAAGTTGTTATAATTGTCTT[T/C]TTAATT<br>TACTGTTTGATGTTTCTGGTCATTACAGGCTGCATGCATCAACTAGGTAACTGTCGTTGTTG<br>TTAGTTTTGTACTCCACTTTTTGTTAGTGTTTTCAATGTCATTTGTTGCGTTTTTTCCTTTCTT<br>TTTTATCCAACAGTATACAACTTAAATCTGTGTATGCGTGGGAATTTG |
| >Gm20_27301964 | GTCTTAGCATTTGATTATTTCATTTGATGTTATTTTCATCTTCAAGTTGTTATAATTGTCTTCT<br>TAATTTACTGTTTGATGTTTCTGGTCATTACAGGCTGCATGCATCAACTAGGTAACTGTCGT<br>TGTTGTTAGTTTTGTACTCCACTTTTTGTTAGTGTTTTCAATGTCATTTGTTG[T/C]GTTTTTTC<br>CTTTCTTTTTTTATCCAACAGTATACAACTTAAATCTGTGTATGCGTGGGAATTTGTGGCGGC<br>CGAGCCTATTTGGTACATTCCTTTGAATTGTCAGTGTGTACACTAATAAATAAAACACTATTT<br>TATTTGTCCCTCAAGATTTCAGATTTTTCAAATATGGAAATTTTGTT |
| >Gm20_27706455 | ATGATTAATTTCTCCGAATACTACAATTAGTTTTAACAACTTAATTTAAAACAAACAAATTACA<br>AATTAGCAAAAAAAATTCTATGAAACGCGGAAAATTCTTTTATTTAGCCACGTAAAAGGTTA<br>AAACCATGACATACAGTTTGATGGTCCCCATTAGCTATATCAACACAAGAAAG[C/G]CACAC |

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| | AAGAAGGAGTTCCTCTCTCAATATCCAACACCAGCAAAGCGTCCTCCACCTCCTCTACTAC<br>TGTCACCACTGCCAATGCCAGTTCCACCGCCACCATAGCCGGTACCACTGCCAACGCCAC<br>TTCCTATCCCAACACCACGTCCTTGTCCACCACCACCTTGAACGCCACCACTAC |
| >Gm20_<br>2770648<br>8 | TAACAACTTAATTTAAAACAAACAAATTACAAATTAGCAAAAAAAATTCTATGAAACGCGGAA<br>AATTCTTTTATTTAGCCACGTAAAAGGTTAAAACCATGACATACAGTTTGATGGTCCCCATT<br>AGCTATATCAACACAAGAAAGACACACAAGAAGGAGTTCCTCTCTCAATATCCA[T/C]CACC<br>AGCAAAGCGTCCTCCACCTCCTCTACTACTGTCACCACTGCCAATGCCAGTTCCACCGCCA<br>CCATAGCCGGTACCACTGCCAACGCCACTTCCTATCCCAACACCACGTCCTTGTCCACCAC<br>CACCTTGAACGCCACCACTACCACTTCCTGAGCCTATTCCAACGCCTGAGCCAC |
| >Gm20_<br>2787705<br>9 | TCGCCCCTCCTCTCGTCGAAACCCGACCCCATCTCCAAATTCGCCTCCGGCATCGTACCAT<br>GTAAAGCCTCGCCGGAATATCTCCTCTCATTTTCCACTCTGTTTTCTCTGTTAACCCTAATTT<br>TCTCGTTTTTCTTTTTTTTAAATTTCCTCGCAGTTCTCTCACTACTTCGGGGATT[A/G]GCTCC<br>TTCTTCCGTCCATGGCTCTCCCAGACACTCTCACTAGCACTCCCACCAGGTCAAGTTTTCG<br>CCTTTTTCACTCCTCATTCCACTTCTTCCCCCTCACGTTTGGTAATTTACCATTTTGCCCTTT<br>TGGGTTTTTTTCCTCTTGTGTTTTTTAGAAATGGGTTGAGTTAGACCTTAG |
| >Gm20_<br>2787848<br>2 | ATATCATCAAATTTATTCTACAAGCACATGAGTATGTGAACATTTTATTACATGCTAATATAC<br>AGGAAAATATAAGCAGTTGTGTGTTTGTATGGACTCTTCAGCAGTTGACATTGTCTTCTCTG<br>TTATTGCAGTTCTATGGATGAAAGGGAATCCTTGAAGAATGACACTCCAATTTG[C/T]AGCAA<br>TGCTTGTAAGGATGTGACAAAGGAGAAAACCTTCTATCTTCAACCAGTGTCACCTTTTTCTT<br>CTGGTGTAGGTTTGCCATATGCACCTGAAGGGTGGCCTAGTCCTGGTGATGTATGGGGCT<br>GGAAAGTGGCAAAAAGGATGAACAGTTTTGGATATTTTATTGATAGATTCCTT |
| >Gm20_<br>2787962<br>5 | AAGAAAGAAGTTAAAACTGGAAACAGGAAGCGTCAGTCACCCCACTGAGAAATCTCTTGGA<br>CTATTAGCTCTACAATCATCGGAGACCGGAGAAGATGCCACAGATAAGACTGGCACCACG<br>GGAAAGAAGTTAAAACGGAAAACACGAAGTGTCGGTCGCCCACCTAATAAGAAATCTT[G/A]<br>TGGACTAGTTCAGGGTCGTCCCCATTTAACACCTGATCAAGTTGCAAAATTTGATGACTATC<br>TTGATACCTTGGAGGACATGCTTGTTATGCCTGAAATTGAGACTACACCATCGGATAATCTA<br>ACTCCTACCATTTTGGATGATAATGAAACGATTGAGTGCTGCAAGAAGAAGCTGTC |
| >Gm20_<br>2907004<br>6 | GATTTTTAGAGAGATCGGACTAGTATAAATGAACGTGTTAATGTTTAGCTTCATTACAACTA<br>CATGGCTATGAATATGAAGATGTCATACAGAGTCATGCTAGTTTTGTTTTCACTTTTCATGTT<br>CGTCATACCTTCAAAGCTTAGTATGCGTTGCGATCGGGGAGCGCCTCCTGAGAC[A/G]CCT<br>ATTTCGTGTATAGGGCGACCTGGTACGCGTCCACCTAAAACATCAGCTTCTAGTTTTGAGG<br>TAGCCCGACCGGTGCCACCATCATTCAATAGGCCTCGAAACAAGGGTACACCTTATGTTCA<br>CTATCCCTAGCAGGAGTACTTCTTTGCAGCAGCAGAAACATGCATGGGGTCCTCA |
| >Gm20_<br>2966627<br>1 | ACTTTTTTTGAAAAAAATGTATTTTTTTTTCGGGTTTTATATATGTATTTGAAATTGTTGGAGT<br>GTCCCTCATTGGTGAAAAGGAGCACACATTAATAAGAGCAGAGCATAGTAGCATCTTCATT<br>CATCTCTACAGCACAAAAAAGAAAGAAATCCAACCCGTGAAGAAAGCAAAGCAA[G/C]TAAT<br>AATAATAATAAAAAAACGTTTACCCCCTTTTGTCTGCGCGTGCGTGTGGATCTGGCAAGAAA<br>ACAAGGAAGGGAGGGTTCATTGCGGATCTGAATTCGCAGTGTTAGGGCTTTGAAGGGTTTT<br>TCCATTTTCTTCAATGGCCACGCCCTTTCCCATTCCCGTCACCGCAGCTCAGG |
| >Gm20_<br>2966799<br>0 | ATCAAACAATGATATGTGGAGTTGTGGATATTTTTCTCTACCGCTATTTGATTTATATGGAAT<br>TGCTTTACAGTGTCCAACTACCTGCTGGGTGGAGATATCCAAGCTAGGGACTACGTTGCTA<br>CAAATGAGGTCAAAGAAAATGGTGTAGTTGATAATTATGGATTTTCAGAGCAAAG[T/C]ATG<br>CAGCGGGCCCCTGATACTGAGCATATTAGGGAGGATAATACTGTTGAAGAGTCAAATGGTT<br>CACTTCAATCTTCAGTGAATGCAGTGCAAGACCATGTACCTGTTTCTCCTGATGAACCTGCT<br>GGGGAGCCACAAAAGCACACTTATGCTTCCATTGTATGTACTGGCTAGCCTTTT |
| >Gm20_<br>2966800<br>7 | GGAGTTGTGGATATTTTTCTCTACCGCTATTTGATTTATATGGAATTGCTTTACAGTGTCCAA<br>CTACCTGCTGGGTGGAGATATCCAAGCTAGGGACTACGTTGCTACAAATGAGGTCAAAGAA<br>AATGGTGTAGTTGATAATTATGGATTTTCAGAGCAAAGAATGCAGCGGGCCCCTG[C/T]TAC<br>TGAGCATATTAGGGAGGATAATACTGTTGAAGAGTCAAATGGTTCACTTCAATCTTCAGTGA<br>ATGCAGTGCAAGACCATGTACCTGTTTCTCCTGATGAACCTGCTGGGGAGCCACAAAAGCA<br>CACTTATGCTTCCATTGTATGTACTGGCTAGCCTTTTTGTTAATTTCCAAATAA |
| >Gm20_<br>2970709<br>4 | ATTGAAACCTGAATCCTGCGGTATTTCAGTAAAGAAACATTCCTTGCTTTAGATCATACCAA<br>CAAAATTATATTGGCATTGGAGTTAATTCCCTTTGATGATGTTTGTGGTTCTCAGCTTTGGA<br>GGAATGGCGAAAGAGGAAGATGGAGAGGGCCAGACAAAGAGAATTGGAGAAAAAT[G/A]G<br>AACAACTTCTTCTCAAGCTTGACTTTATATATTCTCTTATATCAAGTGAAAGTTGACATGCTG<br>ATTTCAATACATAATGGGACAATTAGTAGTCATTTAGTGTACACTGTATAGCATCTTTAAGAT<br>TTTCCACAGCTTATGTTATAAAGGAATCTTTCTTCGGACAGAATTTGTGATTA |

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| >Gm20_29985714 | GGTGGAGTAGCCGGCTTCTGGGGCGCACTGATAGAAGGCCCGAGAATCGGACGCTTCGACCACGCGGGACGCGCCGTTGCCCTCAGAGGCCACAGCGCGTCCTTAGTAGTCCTGGGGACCTTCATGCTTTGGTTCGGTTGGTACGGATTTAACCCTGGTTCATTTAATAAAATCCTAGT[C/T]TCCTACGGTAACTCAGGAACTTACTACGGTCAATGGAGCGCGGTTGGGAGAACCGCGGTCACCACTACCCTTGCAGGGTCAACTGCTGCGTTGACCACTCTCTTCGGGAAACGGATGATATCCGGTCATTGGAACGTGACCGATGTCTGCAACGGGCTGTTAGGCGGCTTCGCCGCCATA |
| >Gm20_29986416 | AAATTGTTGAGGATTTCTTCCGAGGATGAGCTTGCGGGGATGGATCTTACCCGTCATGGAGGATTTGCTTATGCTTATGAGGATGATGAGTCGCACAAGCATGGGATTCAGCTGAGGAAGGTTGGGCCCAACGCGTCGTCCACACCCACCACTGATGAATGATTACGATCACGATTAAT[A/C]CGGCCCCGACAGTATTATCTTCAATTGAAATTACGTGTGACTTAGAAGAAGAAAAAAAGATGATGATGATTTTGTTTGTAATTTATTTTATTTGTTTTGGGTTTTTTTTTTAATTTTGTAGATTTTTCTTTTTATGATGGGTAAGTAGGGATTTTAATTTGTAATTGTTATTGGCCGTAT |
| >Gm20_30319057 | AAAGAAAGGGAAGCATCGGTGCCAGATTCCTGTAGCGAATCCAATAATCAGTCCTCCACCACACTCAGATCTGCGAGTCTTTCTTGGGTTTCTCTGTGTTGTGTGCAAATTCAATGTTCAATTTCAAATTTTCTCTGAATTCAAACGGTTTAGTTTAAGTGTATGAGATCATCAGAATT[G/T]CCCATCGGAAACTGGAACCCTAACCGAACTTGATCCGAATCTCCAATGTCTTGTCTAGCGCTTTCCCTGCAACCTGCAAATGGACCCGACATCCTTCTCCAGACGCGCGAGTGGTTCCCTCCCTCACGCGCCCTCGGCGCCCTCTCCGCCTTCCGCCAGACGCGCCGCGCCTTCGCCGCC |
| >Gm20_30319132 | AGTCTTTCTTGGGTTTCTCTGTGTTGTGTGCAAATTCAATGTTCAATTTCAAATTTTCTCTGAATTCAAACGGTTTAGTTTAAGTGTATGAGATCATCAGAATTTCCCATCGGAAACTGGAACCCTAACCGAACTTGATCCGAATCTCCAATGTCTTGTCTAGCGCTTTCCCTGCAACC[T/A]GCAAATGGACCCGACATCCTTCTCCAGACGCGCGAGTGGTTCCCTCCCTCACGCGCCCTCGGCGCCCTCTCCGCCTTCCGCCAGACGCGCCGCGCCTTCGCCGCCAACAAGCATTCCGCGCCCGACGACGCTTACGCTGCGGAGTCCATCGGCGACGATCCCCTGGCGGCGTCCAGCGGC |
| >Gm20_30320625 | TAAAAGATTTGTTATACAGAGTTCGCGTGTTAGTAGCCTTGGCAATGGGCTGTTTCATGTGAGGACTGCGGCCTCTGAGGAGCCGATACCGATTATGAAGTATAGTTTGGTTCCTAGGTTGACACCTTTGCCTTTGAGGGTTCGGCTTACAAAACGGCATACTGGGAGTTTGCTTTCTG[A/G]GATGATACAATATGCCTCAAATCCTGATTTGCTAGTTCCCTTGCATGATGTTACATTCACTCTGAAACTGCCTGTTGACCCGACACTGTTGAAGGTTTCTCCAAAAGCTGTGTTAAATAGGACTGAAAGAGAAATTAAATGGCTTGTGCCAGAGATTCCATTGAAGGGCTCTCCTGGCAG |
| >Gm20_30451031 | AGATAAATGCTTCATACAAATCAGAAAGAAGGGATAGAGAAGCATGATAAACACAAATGTTTGTCACGGAGGTTAAAGGTTTTACAATGTCTATAAACAGTTACTAAAGAGCAGTGAAGCACCACCTGAAACAATTATTAAACAAGGGGCCAAAATGCCTGCTGAACTCATGAGCTCTA[C/T]TTATAATCACATTCACACCTGAAAAGCTAGGATAAACAAGATGGGATAATACAAGATAGTAGAACAAAAAAATCTAAAGACAAAAAATTGAATGCCGCTATCTACTTTTCATTACGGGATTGCAAGTTGAAGCACATACACTTATCTTTCATGGCTTCACCCTCACTTCCATACTCTTTA |
| >Gm20_30452416 | ATACATCTCAGAAGCCCTCTGAAACCTACCCAGATCCATATACAACCCACCTAAATTATAAAGTGCATCCACATGACCAGGCTTCAAATCAATAGCCTTCTGAAACACCTCAATAGCCCTCTCGTCCTCGCCCATGGCATGCAAAGCCGAGGCCAAATCACAATGTGCGTCAGCATAAT[A/C]CGGCTTCATGAAAATTGCCTCCTCCAACGCCTTAACAGCTGCCCTATACTCCCCAACACCAAAAAGCGCACTACCTAAGAGCTTCAAAGCTCTAAAATGCGTGGGACAAAGAATCGCGGCCTCCCTATAATACTCACAGGCACTCAAAACCATCCCTTCGCCCTCAAGTGCGATGCCGAG |
| >Gm20_30452443 | ACCCAGATCCATATACAACCCACCTAAATTATAAAGTGCATCCACATGACCAGGCTTCAAATCAATAGCCTTCTGAAACACCTCAATAGCCCTCTCGTCCTCGCCCATGGCATGCAAAGCCGAGGCCAAATCACAATGTGCGTCAGCATAATCCGGCTTCATGAAAATTGCCTCCTCCA[T/G]CGCCTTAACAGCTGCCCTATACTCCCCAACACCAAAAAGCGCACTACCTAAGAGCTTCAAAGCTCTAAAATGCGTGGGACAAAGAATCGCGGCCTCCCTATAATACTCACAGGCACTCAAAACCATCCCTTCGCCCTCAAGTGCGATGCCGAGGTTGACGTAAATCTGGGGGAGCAAGTA |
| >Gm20_30453928 | TTGATGATAATCATGATAGGCGGTTGTGATGTGGGGTTACTACTCAGAGGGACCATTTCAAAGGGAGCATGATTTTTGAAATTGGAAAATTTGGAACCCTAATTTGTTGTTTCGAATCTTTTGATGAGATTTGGGGTTCGTTAGGGCAGGGGTTGGACTTGTTTGTTGGTGATGATGAT[A/T]ACGATGAGTGGGGGCGTGTGTGGGTGAAAGCTAAAGGGGATTGATGGGACCAATTCCAAAGGCTATGATTTTTTTTCTTAGGGTTTGAAATTGAAAACCCTAAATTGCTTATTTTGAAAATCATTAGGAGTTGATTTGGGACTTAGTTTGCACAATTATTAGCTGTCTGTTAATCGTTAT |
| >Gm20_3052866 | CATTGTTTATGCGTCAATTTTCTACACAATAATTCCATACCTTTGCTATTGTACAATTCTCTTTGCTCGAAAGTCAAATAACCATTTAAATAAATAAAACTACCAGTGCATATTAATAAGAAATAA |

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| 2 | GAAATGGCAGATGGAAACTTGAATATATTTTTACGTTGGACAAGGTAAACAAT[T/A]TCATCA CTTCCTATTCGTTATAGTTTGTTTTGTATCTATTAACGTAATATCCAGAAGCAAAAGGAATTG TTTTTCATCATAAGCTGTCTACTAGAAGAAGTTGATGTCTATCACCCATTTCTTTTAATGTCA ACAAAACACCCCGAACAAGAATAGCTACAACCATATAAATTTCCGATA |
| >Gm20_3052879 4 | GCAGATGGAAACTTGAATATATTTTTACGTTGGACAAGGTAAACAATGTCATCACTTCCTAT TCGTTATAGTTTGTTTTGTATCTATTAACGTAATATCCAGAAGCAAAAGGAATTGTTTTTCAT CATAAGCTGTCTACTAGAAGAAGTTGATGTCTATCACCCATTTCTTTTAATGTC[A/G]ACAAA ACACCCCGAACAAGAATAGCTACAACCATATAAATTTCCGATAGTAAGTATTGGCCGACAA ATCAGTTATCTCACTAATTAAACAATTGACGTTACAAAATTATCTACGGACAACATAAGCTTT GAGGTTTTGATGACTAAGGCAAATATTGCAGCTTTCTATCACTAAGGTTAG |
| >Gm20_3052922 9 | TGCCATGTGAGGAGCAAGACTGAATAATCAAAGAAACCACTACCTTCATTAACTTTTCCAAT CTCATCATAGATATTTAGACCAAGCACCAATAGCAGGTAGCAACTGTTTACTCCAGAGCAA GACTTTGGCTTGTACAACTGAGGCATTTTATGACTCAGTAGGAGCATCTTCACCGG[A/G]CA AGCCGAATATCCGAAGATTTCGGTCCATTGATCCCACAGCTATGTATTTAGAATCTGGACC AAATTTTACACACGTGTTCTTCCCTGAGAAGAAAAAGTTCGAGTTGTGTATTAGTAACTGAA CAAACATGAAATCATCAAACCCTCAAGGAATAATGAACAATGGGAAAAAGGTATA |
| >Gm20_3053429 4 | AATTTAACCCTATTTCCTCTTCGGCTATAAAAAGTCAAAAACAACTTCTACACAAGTGCTTAC ACAATAAGTTTAAGTTGTTTATCCAAAAGGACCCCAAATAAAATGGTTCTAACTTCTAAGCA ATTAAACCTACAGTAAAGGATAGCACTTTTACCTTATCTGCTGAAGCAGTTAGG[T/A]ATGAT TCACCCTGAGCTACAAACTTTACACTGGTCACCTAACAAAAGCATTCATAATCAGCAGAAGT TGAAGAAAAGATAACTGTAGCCATTTCAACTAAAATAAAACCTTTTTAGAGTGACCACTGAG TGTAGATAATATCTGTCCTGATGGGCGGTCAAAAATAACAGCATTTGTATC |
| >Gm20_3053711 3 | TTTCTTTCTCCTTTTCAAATTCTCAATTAAAACACTTTTCGCTACTTGACCTCTACTATTTCCT CACTTTTTTTGTTATTTTCTCAGTAAATTGAATAAAAAAAATGAACAAATAGAGAGAGAAGGG TTACCGAAATGTGTCGCTCAATCAAACGCTTCTCGAAGAGGAGACCGGAGTT[G/A]CGAGA CACGACGGGCTCTTCCGGAACTTCGCCGGAGACTGCAAAAACAGAGAAAAACAACGACGT AGAGTCAGATCAGCAAAACCCAACGAATTTCAGTATAACAAAAAATCAGAATGAAAGAGAG CGTGTAGTGTAAAAAATCAGAATCGGAGGAGAAAAGGAAGTAACTGGAGCAATT |
| >Gm20_3069148 5 | TGTGGTGAACTGTGCGACAACACTGGGGCCAAGAATCTTTACATCATATCGGTGAAAGGAA TCAAGGGTCGCCTCAACAGATTGCCATATGCTTGTGTTGGTGACTTGGTCATGGCTACTGT GAAAAAGGGGAAGCCCAATCTTAGGAAGAAGGTATTGCCAGCAGTTATTGTGAGACA[G/T] CGTAACCCGTGGAGAAGAAAGGATGGTGCCTACATGTACTTTGAAGGTAATTCTCTCTCTC AATATGTTAATTTTATTAGAAAAGAACATGCTTGCATTTTAGTGAAACTTTACAATTCATACTT CTAGTGTTTTTATTCACAAATGTGTTGTTTCGTACTTTGTTCTGGAAAATGCATT |
| >Gm20_3071399 1 | ACTGAATGTGACATCTCTAGAGGAATGGATGAGCAAGGGCAATGCACCTGCTCTTGATCAC TCATTGAAGCTATACAATGAACTTAAATCCAGGGGGGTGCAAATCATTTTGGTTACTTCAAG GAAGGAGCATCTCAGATCAGCCACAATTGACAACCTTGTCAAGGTTGGCTATTATG[A/C]TT GGACTAAAATTGTCTTTAGGTGAGTACTGTTTAACCCTTTATCTCATAATTATCTTTCACTAG TTCTCATAATTATCTCATATATATATATATATATATATATATATATATATATATATTAATCTCTGTG CAGAGATCCTGCTGATGAATTGGTGTCAGTGCAAAAGTACAAGTCTGATG |
| >Gm20_3111466 1 | CATGTCAAGGGAGAAGACAGACGTAATTTTGAAAGTAGTTGTGAAACACTTCTTTATAGAAA AAGAAGTGACTTCTACTTTGGTAATGGACTCCCTGTATAGTGGGTTGAAGGCTCTCGAAGG CCAGAATAAATGCAAGAAAGGTAGGGTAAAATTGTTGGATGCTGAAGAAATGCCCG[A/G]A CCAATTGTCGGTGCTGAGAAAGATATGTTTGTATTGGTGGATGATGTTCTTCTGCTACTTGA GAGAGCAGCTAAAGAACCTCTGCCTCCGAAAGATGAGAAGGGTCCTCAAAACCGCACAAA GGTGAGAAAAATAATGTGTTGATAAAAAGTAAACGAGGAATTATGTTGCTAGCACTT |
| >Gm20_3112368 6 | CAAGGGGAACTCTTTTTCAAATTACAAAGTCCAAAAGTCACCTAACAGGTAAGTATATAGTG TAGTGTTTCTTTTAGGTGGATGAGTATCTATGATTAGTCTGAAATGTTAATTTGATTTGGCAC TGCTTATTTGTAGAGGTAAGAACCAAGTAAAAGCATCGTGTAATGTGGACAGTT[T/G]CACA ACAGAAATGGATAGTCAGCCGTCCGGTTCTTCTGCAGATGCTGTAGATGTTAATGAGTCTG GAAGTAGCAAGTTAGGTGGATCTGAGCCTGAGGGTGCTGTTCTCTGCTTGCAGGATCGATT AAAGTGGCTTGATCAGCCTGTCATCAGAAAGGTGGTATTATTTCCAAAAGCTTA |
| >Gm20_3112523 8 | TGGTCGGTTAGGTCCTGATCCCTCACCTGCTACTCATAGTTATGTTCCCCAGTCCTATAGAA ATGCAATAATGGGGAATCCTGTGGTGTCAACTGCTGCCAGTCTTCCTCATTCCAGCTCCAG TTCAGGAGTAAACCCATCTCCTGGCTATTCACATCCACCCATGGTATCATCCCCAC[G/C]AT TTATCTCCCGGAGCTCCGACAAAATGGATTCAAATACTTCCCAGTCTGGTGTTCCCTTTGGT ATGATTTCACGGGATGTTTTACAGAACGGACCTAATTGGATTGATAGTTCTCAAAGGGAAG |

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| | CCAGCAGAAGCATGCACTATGAACCTCCTTCCCGACTAAATGATGTTCAAAACCT |
| >Gm20_31543069 | CGCCAAGGGGTTGAACTGCATTTCTTCGGTGGAATGCTCCTTGGGACCGGTGGGAAGGGC<br>GAGCATCTCGTCACACATAAGGCCCTGGCTGAAACCACCATGATTGAACTCGGAAAGCGT<br>GATGGTGGTTCCCTTCTTCTTCTTGGGCTTGGAGTTCAAAGCCTCCTTGAGGTTGGGAA[C/<br>T]ACTTTGGGGCTCGACCGCCACGGCCTGGGCCTCAGCCTTCTTGGCCTTGGCCAGTGTG<br>ATGGTGGTTCCCTTAGGTTTTTTGTTTGTCAGAGATGGGAGCATAACATGGGAAAGGTGAG<br>AGAGCTGTGCCGCGACACAATCAATGGGAAGGTTTTTTAAAGACTATTTTTGGAAAATAAT |
| >Gm20_31624554 | GAAAATGCTCACCACCATATTGAAGATTTCAAATTTTAAAATGTGTTCAATTGAGAAAAGAAT<br>CTCCACATTGCAATTGCCACTCCACACAATCTTCAAAATCAAAACTGCTTGCACAATCCAGT<br>AGAGCATTTTGTTGGTGCTCATACCGGCATATGTAATTCAACCCAACAAGAATT[G/C]TGCA<br>GATTGATTCCTCAGTCTTTTCCCTGTCAGCAAAGTATAATGTCTGAAGTAGCAGAACATTTG<br>TCCTGCTAACGATTTGGTGTTGCTCAAAATTACGCTCACTTTGCCATCTGATCATGTTATGG<br>GCAAGCGGGGCCAGCCACTTGAATATCCCATCAAGATTCTCCTTCCAATCAT |
| >Gm20_31793087 | CCTTGAACCCAAAGGCGAGAAAACGAAAACCCACATCCAAAAATCGAAAACAAAGTGGAAA<br>GTGAACTCCTTTTTACGAATCCGATAGATCTGTGAAAAGGTCACTTACATCTGCCATGCAGT<br>GAGGATGAAAAGGGAGGCAAAGAGAACACGACCCAGAAAGGAGGAGAACCCCATTT[G/T]<br>ACTCCCTTTGGCAGAGGCGAAGAGAGTGAAGCTCGGAGAGAGAATAACGGGGAAGACAGT<br>GAGAGAGAGAGTGAAGCAAGGAACACGAAATGAAATATAATATTGTTGGAGAGAGAGAGG<br>AGAGAGTGGCAGTGACCAGAACAAGGTGGTCAATTTGATTAAATTTAATGTATTAAATTA |
| >Gm20_31991811 | TTGGCCAAGATTGTAGTAAGTTCTTGAAGAGCATTCACTAAGTTGATTGTTGTGTTGTAGTG<br>TGATTTACTAGACTTGCCTGCTGTTACACAACTGGAGAAGGATGCCAAATATGCTCTGTTAT<br>ATCAGCTTCTTAAGATTTTTCTTACCCAGAGGCTGGATGCATACTTAGACTATCA[C/G]GCTG<br>CCAATTCCACCTTGTTGAAAAGTTATGGTAAGCACTGTTTATGAATGATTATCATTTATCAAT<br>AGTTACATATACAGGGTTCTTTTCTACTTTATGTTACTATCTAAATGTTTTGATGTTATGATG<br>CTCTTTTAGGCCTTGTGCATGAAGAATGCATTGCCAAAATGAGGCTTTTG |
| >Gm20_31993488 | TCCAGGTGGAATTTTTTTATCTTAAACAGAGGATAAGAGTGTAATTTGCTTTGTTGCAATTTA<br>TTTTTCCATTTATTTTAGTTGGCTGGTGACTCTAATTTGTACTAAACTTTGGCAGAGCCATTT<br>TGATTGAAGTTTTTCCATTTTTAATTTAGACCAGCCTCATTTCTAAATATCTT[G/C]CTGTCGT<br>CTAAGTTAACCAGTGCGATTGTTGTTGCCCTGATTGCATAGTCAATTCAACTATCAAATTCA<br>TATTAGTATATTTTCACTCTTACAACGCGTGCTTGACACTTCTTTATACTTGTATTTATAGGA<br>GAAGCGTAAAGTGCATTTTGGAATTCGCTTCAACACTAGACTAGATAG |
| >Gm20_32068827 | TTAATAGTTGAAAGCTTAGCCCTCAGAATCTCCTCCATGTCCTTCCTAGAGTCATTTCGCAA<br>GCTTTTCCTGCTCGTGCAAGGCACCGATCGCCATATTTTCCTGCATGCCCTCCTCATTCTT<br>GCTTCTAATTTCAATCTTCACCAATGCGCATATCCTCTAACACATCACACATTAAT[G/C]TAA<br>CTATGCCTATTGATGATACCTTGAGTGACCTTATGACATCTTTGAGTTTTCAAATATAGTGCT<br>AACTCTTCTCTCTATATATATTACTAAAAAAGGAAGAGAGGGTATGTGTATGTATATGATCAA<br>GGAAATTTCGATGAGTAGTCAGATTAGTTGGAAAGCTAGCAGCTGTTGAAA |
| >Gm20_32088857 | GGTCATTGCATACAGTGAGAACGCACCCGAAATGCTGACCATGGTGAGCCATGCTGTCCC<br>CAGTGTTGGTGACCACCCTGCCCTTGGTATTGGCACTGACATAAAAACTCTATTCACTGCA<br>CCAAGTGCTTCTGCATTGCAGAAGGCTCTAGGATTTGCAGAGGTTTTGCTTCTTAACC[T/A]<br>TGTCCTTATCCATTGCAAGACCTCTGGGAAGCCCTTTTATGCGATTATCCATCGTGTCACTG<br>GTAGTATGATCATTGACTTTGAGCCAGTCAAGCCGTATGAAGTTCCCATGACTGCAGCAGG<br>TGCCTTGCAATCTTACAAGCTTGCTGCCAAAGCAATTACCCGATTGCAATCGTTGCC |
| >Gm20_32088887 | AATGCTGACCATGGTGAGCCATGCTGTCCCCAGTGTTGGTGACCACCCTGCCCTTGGTATT<br>GGCACTGACATAAAAACTCTATTCACTGCACCAAGTGCTTCTGCATTGCAGAAGGCTCTAG<br>GATTTGCAGAGGTTTTGCTTCTTAACCCTGTCCTTATCCATTGCAAGACCTCTGGGA[A/G]G<br>CCCTTTTATGCGATTATCCATCGTGTCACTGGTAGTATGATCATTGACTTTGAGCCAGTCAA<br>GCCGTATGAAGTTCCCATGACTGCAGCAGGTGCCTTGCAATCTTACAAGCTTGCTGCCAAA<br>GCAATTACCCGATTGCAATCGTTGCCTAGTGGGAGCATGGAAAGACTATGTGATAC |
| >Gm20_32093107 | CAGCTTTTATCCTCTCTGCTGAACTTGCAGCAGCCCATAATTTGAAAGGTTAAAAGTTTTGG<br>AAAAAAGAATAAAAGATGATGCAACCAGCAAAACACAATCTGTTTTGTACATCATAAAGAGA<br>ACGGAGCTAGAAATTAATTGCATCCAATGTAACTCTAATTTGTTCCCACGTTTCT[G/T]ATTA<br>ACTGCTTCTTGTAACGTACGTTGTAGATATGTATTAATCTTCTTCCCATTCCGTGGCCTGTT<br>CTTTCTAGAGTTTTTCCTTATTTACTTATTCCTCCATCAAACAGCAATGATGAATCATTTGTT<br>GCGAAATGAAACGTAGAAATTAGAAACCGCTGATTCTGTCTCTCGCTTCTT |
| >Gm20_32100447 | GATGGCCTGTTGTTATTACCCGCAATTCAAATAGATTCTATGTGTGCTATGCTTTTGCAGGT<br>TCTGGAAAGAGATGGGAAAGTCTAAGGAAGTCAAAGAAATATCCAAATCTTGCACGATGGT |

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| 9 | TCAATTCAATAGTGGAAGAACATGGTACTGCCTTAAATGAAGTCACATCAGTATAT[G/A]CTG<br>GCAAAAAAGGATTGGGTGAACCAACAGCAACCAAGTCAAAAGAACAGTCAGTAAACACTGA<br>TAAAGTGAAGAAGGTGAATGGAGATGTGTCTGAGAACAACAAAGGAGGAAGCAAACCTTCA<br>GCAGAAATAGATCTTCCAGATGCTGAAGTTGGAAAAGTTCGCTTGCGATTTGCAC |
| >Gm20_3210046 7 | CCCGCAATTCAAATAGATTCTATGTGTGCTATGCTTTTGCAGGTTCTGGAAAGAGATGGGA<br>AAGTCTAAGGAAGTCAAAGAAATATCCAAATCTTGCACGATGGTTCAATTCAATAGTGGAAG<br>AACATGGTACTGCCTTAAATGAAGTCACATCAGTATATGCTGGCAAAAAAGGATTG[G/C]GT<br>GAACCAACAGCAACCAAGTCAAAAGAACAGTCAGTAAACACTGATAAAGTGAAGAAGGTGA<br>ATGGAGATGTGTCTGAGAACAACAAAGGAGGAAGCAAACCTTCAGCAGAAATAGATCTTCC<br>AGATGCTGAAGTTGGAAAAGTTCGCTTGCGATTTGCACCTGAACCAAGTGGTTATC |
| >Gm20_3210088 3 | CAGGGTCAGGTTATTGTGCGTTTTGATGATACCAATCCTGCTAAAGAAAGCAATGAATTTGT<br>GGACAACCTGATTAAAGATATTGATACATTGGGCATCAAATATGAACAAATTACATATACAT<br>CAGATTACTTCCCTGAGTTGATGGAAATGGCTGAAAAATTAATTCGCGAGGGTAA[T/C]ACA<br>TATGTTGATGACACTCCACGTGAACAAATGCAAAAAGAGAGAATGGATGGCATAGAATCTA<br>AATGCAGAAATAATATAGTAGAGGAGAATCTAAAACTGTGGAAGGAAATGATTGCAGGAAC<br>AGAGAGGGGATTGCAGTGTTGTGTCCGTGGCAAGTTGGATATGCAGGACCCAAAC |
| >Gm20_3210096 2 | ATATTGATACATTGGGCATCAAATATGAACAAATTACATATACATCAGATTACTTCCCTGAGT<br>TGATGGAAATGGCTGAAAAATTAATTCGCGAGGGTAAAACATATGTTGATGACACTCCACG<br>TGAACAAATGCAAAAAGAGAGAATGGATGGCATAGAATCTAAATGCAGAAATAAT[A/C]TAG<br>TAGAGGAGAATCTAAAACTGTGGAAGGAAATGATTGCAGGAACAGAGAGGGGATTGCAGT<br>GTTGTGTCCGTGGCAAGTTGGATATGCAGGACCCAAACAAATCACTTAGAGATCCTGTATA<br>TTATCGTTGCAATCCAATGCCCCATCATAGAATTGGATCCAAGTATAAAGTGTATC |
| >Gm20_3210183 1 | CAAAAATCTCAATCTCATGGAATGGGACAAGCTCTGGACCATTAATAAGAAGATTATTGACC<br>CTGTCTGTCCTAGACACACTGCTGTCATTGCAGACAGACGTGTGTTGTTGACTCTCACCGA<br>TGGTCCTGAGAAACCATTTGTCCGCATCATACCTCGGCACAAGAAATATGAAGCTG[G/A]CG<br>GAGATAAAGTTACAACATATACTAAAAGGATATGGCTTGACCATGCTGATGCAGTGTCTTTA<br>TCAGCAGGTGAGGAAGTAACATTGATGGATTGGGGAAATGCCATAGTGAAGGAAATAGAG<br>AAGGACCAAGATGGAAATATCACAGGGTTGAGCGGTGCTTTGCATCTTGAAGGATC |
| >Gm20_3210353 9 | GACTTTAGCATATGGAGACTCCAACATGCGAAATCTTCAGCGTGGAGATGTATTGCAACTG<br>GAGAGAAAGGGATATTTCAGGTGTGATTTACCCTTCATTCGCCCCTCACAACCAATTGTGC<br>TATATGCAATCCCTGATGGTAGGCAACAGACAAGTTTGAAGTAATCTTTTTATCTTG[A/C]AA<br>CTGTGTGGAGCATAACCCACATTCACACTCAGAAAAGTTGGTAATGGGGATAACAAGTTTG<br>TGGAACTACTTTTATGTTTACCATCACATTGTACTATGTTTATATGCAAACCATTATATCTGG<br>ATTTTTTACTAGCAATTGGAAAAGTCTTCCCTTTGTTATTTTTGGGACAAATTG |
| >Gm20_3210357 3 | CTTCAGCGTGGAGATGTATTGCAACTGGAGAGAAAGGGATATTTCAGGTGTGATTTACCCT<br>TCATTCGCCCCTCACAACCAATTGTGCTATATGCAATCCCTGATGGTAGGCAACAGACAAG<br>TTTGAAGTAATCTTTTTATCTTGAAACTGTGTGGAGCATAACCCACATTCACACTCA[G/A]AA<br>AAGTTGGTAATGGGGATAACAAGTTTGTGGAACTACTTTTATGTTTACCATCACATTGTACT<br>ATGTTTATATGCAAACCATTATATCTGGATTTTTTACTAGCAATTGGAAAAGTCTTCCCTTTG<br>TTATTTTTGGGACAAATTGCAATATAGCCTTAACGAAAATTCTATTGATTTTA |
| >Gm20_3211130 5 | ACCGGCCTTGTGATGACTTGTTCTTTGCCACTTTAATTTTTTCTATTGCCTAACATTCATATA<br>GAAATCATTTAAACCTTTCTGAAGAGGCAATTGAAATCCTACTCAAGCAGTTCATAATAATA<br>CTATTTAGAGCTCTACATACCTTAGTCACTCTATCACTGTTGAAACCATTCTCA[C/G]TAACC<br>AGAAATGTTATTAACCCCTGTAAGAATGCAACATAATACAATCTAGTTATCTTGCCAAAGAA<br>CACAATATATATAGATAGAACAAACATATGTATGTCAGTATGTGAATCCATGTGTATTTGAAA<br>AGATATTAGAAGTTCTCAAAGAGAATAGTTATTACTTCTTCATCTGGAGA |
| >Gm20_3212998 3 | AAGAAGGACATGAGAGTTAAGGCTAAAGAAAGCAGCCAAACAAGTGAAGCCAATACTGAG<br>GGACCCTCTTCCTCTGATGAAACAGATGATGGAAGGAACTCTAGGGAATGGAAGCACAGC<br>TAAAGTCAGGAGGCTCAAGACATGATTTGGTATTAAGGACTAGATAAGTAAAAACATGT[T/C<br>]ATGTGGAAACACTAAAATAGATAGTGGTTGAAATCTCTCTTATCCTACATGTGTCCTTCTTG<br>TATGATTGATTAGCACTGTTGGTTCTGGCTCCATCCGTGTGTCTGTTGTGTGCAGAGTCAAA<br>GAGCTTTTTTTTTTTTTTTTTCATTTTAACATGTTCTTTTTTGTTATATAAGTTTA |
| >Gm20_3214638 7 | AGTGTTAAGAAGAACACGTTAAAAAGTGTGAGTATTATCTCGTTTAGTTTATGATCAGACAA<br>TAAATGGTTGGTTGAAGTGCAAAATTAATCAGCCTTTTCCATTATTTAGTAAATTGGTGGGA<br>GTAGTTTTCATGTATAGATTACTTAGTTGGGAAAGCTGAGGCAAATGCCTTCGGT[A/C]TTTT<br>TACAAAGATTGGGAGAGGTAAAGGACTATTAGAATATATACACTGTAATGGAGTAAGCATT<br>GACAGTAGTTGAATGAGATAATCTCAATCTCATATTTCCCTTTCAATTTGGGAATGAAAAATA |

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| | TGTCATTATTGAATTATCAATGTTTATTATATACACTGATGACTTAAATAAT |
| >Gm20_32208099 | ACCCCCCACGTGTTGTCAATGAAGTTTGTGCAGCTTTGTAACTGCATACTCCCATTGTTTTTGTTTGTGCTGTTGCTGTTATTTAAGTTACTTGTTTCCCAGTTTTGAACCCCATCAGATGAAATGGAAGGGTTGTTGTTATTAGATTGGAGCTTCACGTGTTGTGTTGGGAAAATTGA[T/A]GGGAGCATGGAGGAGGTTATGGTGGAATTGTTATTAAGGTCTGAAGAAGTGGAGGCTGGAACAAAACAAAGAGAGGCGTTGGGGTTTGCAGAGAGGGACATGTTTGTTGTTGTTCCATAGTTCAAGTGCTGGAAGGAGAAGTATGATCCTACAACATCAGAAGTGTTGTTGTTGTTGTGG |
| >Gm20_32208274 | TTGAAGGGAGCATGGAGGAGGTTATGGTGGAATTGTTATTAAGGTCTGAAGAAGTGGAGGCTGGAACAAAACAAAGAGAGGCGTTGGGGTTTGCAGAGAGGGACATGTTTGTTGTTGTTCCATAGTTCAAGTGCTGGAAGGAGAAGTATGATCCTACAACATCAGAAGTGTTGTTGTTG[T/A]TGTGGTGGTGGTGGCAGGTGGTGGGGGTACCAAACCTATCTAGGAACAGTTCCTGGGTGGAACTAGTTGTGGAAACTTCAAGAGGGTATCTCTCTGATGATGAATTAGGCATGATTTTTGGTTGTTGCTGGTGATGATCAACCAGACTCACTTCATTGGATCCCACAGACGCTTTCTGAG |
| >Gm20_32208399 | TTCAAGTGCTGGAAGGAGAAGTATGATCCTACAACATCAGAAGTGTTGTTGTTGTTGTGGTGGTGGTGGCAGGTGGTGGGGGTACCAAACCTATCTAGGAACAGTTCCTGGGTGGAACTAGTTGTGGAAACTTCAAGAGGGTATCTCTCTGATGATGAATTAGGCATGATTTTTGGTTG[A/T]TGCTGGTGATGATCAACCAGACTCACTTCATTGGATCCCACAGACGCTTTCTGAGTGCTTTTGTCGGTTGAGGGTGGCATCATGTCCTTTTCGTTCTCAACCTCAGAGAGTGGCTTGTGGGTGTTTGGGTCAATGCCTCTTTGCCTCAGCTTCTTCTTCAGGCAAGAGTTCCATAGGTTC |
| >Gm20_32285027 | ACAGAGGAAGGAGAAGAAGTAGGAAAAAGAACCTGTTGAACGGGGAAAAGCGTTACGAAGTTAGAGATAGGGTTTTGGAGGCTGAAAACGGGAAAATGGAGGAATAGGGTTTTGATCTGAAAATGCGGGAAAAGGAAAAGCGCAAGTCCAATTACCGGAACATGTACAGCGAGTGAGTG[G/A]ATGACGGTCACTTGTTGCTTTCGTCACGTCTCTTTATCTCACTGTGATTCTCGAACCTTCCGAGGAATGAAGAGAAAACGCTATCGTTTGGATATGTAGCAGAGGAGGCAAATTTTCCACTTTGGGGTTCTTTTCCAAAGAATTTTTCAAATTAGGACTGTTTTGTAAGTTTTTTCTCCC |
| >Gm20_32307397 | GACAAGGTTGAGGATGCACAAAGTGCAACATCACCCCCAACAGATCACAAGGTTGAACCTGCTATTACTATAGAAAAGACTGAAGATTCTGTGCCATCTGTTGCAGTTGAAGACAATGTAAAGGAGGAGAAGGAAGTGGTTCCTGACTCACACAGTATCAGTGACATTGAACCAGTTCA[G/A]AAGGCACCATCCACAGAACCCGCTGCGGAGGAAACACCACCACTGGAACTAGAAAAGGAACCAAGCAACACAGATGAGACTAGTCCTCTGACAGAATCAGAAGGAGGGGTGCTGAAAGAAGCTCAAGTTTTGGAAACATGTGCCCAAGTGGAAGAGAAGCCTGAGCCTGTGTCTACACCT |
| >Gm20_32307894 | AAGAGAACTAGAATTTGAGGCAGAGGTATTGGAAAAGACTAACAACTCTGAAACAGAGAAACCAGAGCCTGTGGAAGCTGAAGTTGCTGAAAGCCAGAGAGAAGCAGAGAAAGCAGAGCCTGTGGCTGCTAAAGTTGATGAAAAACAGAGTGAAACAGTGAAAGCAGAGCCTGTGGCCG[G/A]TAAAGTTGATGAAAACCAAAGTGAGCCAGAAAAACAAGAGAAAGAAGAGAAGCCTAAGAAAGTTGCTCCTTTAACAGAAGCTGAAAGTGCAGAGCAAGAAGGAAATATAGTTGAGGCTCACCCTCCCAAAGACTCAGGTATTGAGGATGTGAAAGACACTGGCAACTCGGAGCCAGAAGC |
| >Gm20_32308143 | TTTAACAGAAGCTGAAAGTGCAGAGCAAGAAGGAAATATAGTTGAGGCTCACCCTCCCAAAGACTCAGGTATTGAGGATGTGAAAGACACTGGCAACTCGGAGCCAGAAGCAGTTCCTGAAAAAACAGAGAAACCAGAACCTCTGCCAACTGAAGTGGAGGAAAAGCCAAGAGAACAAC[T/C]ACAAGTAGATGAGGAAGTTGCAGAAGCTAGTAAGGAAATGGAAACTAAGAAAGAAATTGTGATTGAGACTGCCAAGAGTGAAGGAACATCTGACGACACGATCAAGGAAGAGAAAACTGAGAAAGAGGAGGAAACTAGCCTCACTGTAAATGCCACACAAGTTTCATCAAATGCGGAACC |
| >Gm20_32308472 | ATGCCACACAAGTTTCATCAAATGCGGAACCTCAAGAAAATCCTGTGGAAACTTCTTCTGAAGTTGTGCTTGAGACTTCCAAGAGTGAAGGAGCTCTGGATGACACGGCCAAGGAAGAGAAAACTGACAAAGAGGAGGAAACTAGTCTCACTGTAAATGCTGCACAAGTTTCTTCACAA[G/A]TTTCTCCTGAAGCAGCAGAAAAGATTGTTGAAGAGGTTGATGACAAGAAAGAATCAAGCATTTCCAATGTGATCGAAGCGGAATCAAACGAAGCCGCTGACATCATAAAAAGTCCAGAGCAAGCCTCCATTGATGAGGAAGCTAAAACTGACCTAAACGAAGAAAGAGAGATTTATGTTC |
| >Gm20_32308794 | TAAAACTGACCTAAACGAAGAAAGAGAGATTTATGTTCCTGCTGCTGTGGAGGAAAAGGTTGCTGTTGATGTTGCTGCAAATGATGATGTTGACAAGAAGGAACCTGAAGCACCTAATAATGCTGTCCCTGAATCCTCTCAAGAGGAAGTGGTTGAAAGCAAAAAGGTTGAGGAACAGA[C/T]CGAGGCAAAGGCAGCTACAACTGAAGCAGCAGAGAGTGTAAAAGTTGATAAAGTAGTTGATGACAAGAAGGAAGAGAAAACTGAGACAAAGGTGGAAGAAATCTCTAGAGCTATTAATGAACCTGTTAGAGAAACATTGGCATCTAAATTTGAAGAGGAAAGTGTTGAACCTGGAGCGGA |
| >Gm20_3230900 | CAGAGAGTGTAAAAGTTGATAAAGTAGTTGATGACAAGAAGGAAGAGAAAACTGAGACAAAGGTGGAAGAAATCTCTAGAGCTATTAATGAACCTGTTAGAGAAACATTGGCATCTAAATTTG |

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| 3 | AAGAGGAAAGTGTTGAACCTGGAGCGGATAAGGTAGAGAAAGAACAAACTGTGGAG[G/A]C<br>TGAGAAAACTGAGGTTCAAGCCACCAAGGAAAATGATGCAACAAAAACATCCAAGGACCTT<br>CCAAAAGAAACTCCAGCCAAACCAGCTCAAAAGCAATCAAATAACATCATTTCAAAGGTTAA<br>GCAGTCACTAGTGAAAGCAAAGAAAGCTATCACTGGAAAATCTCCATCCTCCAAAA |
| >Gm20_3230919 | TGAGGTTCAAGCCACCAAGGAAAATGATGCAACAAAAACATCCAAGGACCTTCCAAAAGAA<br>ACTCCAGCCAAACCAGCTCAAAAGCAATCAAATAACATCATTTCAAAGGTTAAGCAGTCACT<br>AGTGAAAGCAAAGAAAGCTATCACTGGAAAATCTCCATCCTCCAAAAACCTTTCCT[T/A]CG<br>AGCCCAAGGGCGATATTAAAGTCAAATAATGGAACTGACTGAACAAGTTTGCAGCATTAAG<br>TATTTACTTTCTCTTTCTTTTCTTTTCTTTTTTCATTGTCGTGGCGCATAGCATTATAGCATAT<br>TTGTTGGTTTTTATACATTGTAATTTTTCTCTTGAATTTGTTTGAATGCAAAA |
| >Gm20_3231298 | CTCTTGGAACCTGCACCTCCTTGCCCACCAGCTGTCTTTTTAGCACCAGCTGATTCTTCCTC<br>AACATCCTTCACATAAAATGTTTTCTTGGTTATGGAGGGAAACTATAAGATAAGTAAGAAAA<br>TTATTAAACAGATAAAAAACCATAAATCTAAGACATACTTCACTATGGCACTCAG[T/A]GTCG<br>TCGGTGTCTTTTGTTTTTCGCTTCAAATTTTGATTTGGCTCGTCTGAACCTTGGTCTGCACC<br>AGTGCCAGAGCAAACAGAGGAAGAGGCTACTGCTGGCTCCATACTTTTTTCAGCAGCTGTC<br>TGTCCTTTAGTGCCACTGTCGCCAAGAACTTGGTTGGGAGTTTGATCAATCTT |
| >Gm20_3231375 | CACCATAAGACACATCCTGGTTTGCATTACTCGTATTGTTATTTTCAGTTATATCCGATGCTC<br>TTGATCTAGAAGAAACAAAAGATGTTTGACACTGATGCAATGATGGGGGGAATAACTGACT<br>GGTGCTAGCTTTAGGTCTGGCAGTCTCAACCTGTTCAGCTGAAGAACCCTTGAAA[T/G]CAT<br>TCCCTTGTTCTTCCGAAGTTTTATGAGAATCCCTAAACGCCATATTGCCATTACTTTTTTTAT<br>CCAATAGAGTAAAACTGTTTGAGGCATGTAGGAAATCAGAACCATATTCATGTTGCAAGGA<br>ACCATCCATTGATGTATAATCCAACCAAGGTAACACATCTTCATCATGACAGA |
| >Gm20_3233202 | AATAATTGTGATTAAAGGAATTTCAAGTGGGTTTGGCTTTGATTAGCTTTACTTTTATGGTG<br>GACCTCCTAATTTCACTGATGAAATGATGCTTTTTTTTTTGTGGCAGGTGGACAATAAACAA<br>ATGTCATGGGCGTTTCTGTCTTTCAACTCAGATATTAGTGTTTCTTTAATATATC[A/G]CCAAT<br>GTTGTCATATTCTTATGTTCTGTTTTTAAAACCCCTTTTGTTCTTAGCTTAAGCGAGAGTGGA<br>GTGTGTAGCTTACTAGCTTGTGTATGTAGTCTCTAGATTTGGTAATTGATTTGAAATACACA<br>ATTTCATTTGTATCAACGATCTTGTTCATGTATCTTATGTAAACTGTGCT |
| >Gm20_3233373 | CTTGACATCAGCATACACTATCGAATCATATTAGAAAACAAAGGAAAAGGACATTATCATTA<br>GTCATTAATGGAAAAAATAAACTTGCACTTAACAGAAACTTTGATTTCGATCTCCTTACAAGT<br>TACAATGAAGATACAGATTTAACATGAAGGAAACAATACATCTTCGAATTAACC[T/A]TACCA<br>ATTTACATTGCTCTCTGGTCACACTCGAAAAAGAAAATGAAAACCTGAGCTCTCATCCTTTA<br>AACTGCCACTCCCTACGGCACATGGGGCAATGCGCTTGTGATGTCTGAGAATTCACCCATT<br>TCAGGATACAGTGCAGATGAAATGCGTGATTGCATACACCCCAAACTGTAGA |
| >Gm20_3241647 | TTATATGTATTTTTGGGCCAAAGTTAACAACTTACGTTATTGAAGATTGGAGAGGCAAAAGA<br>AGAAAAAATCCGGGCAGCATTTTATAATCTTGGCCAGAGAATGAAAATAAAGCAGAAATTTT<br>AGGTCATCCATTTCTATCCACAATGACATGGCATATAACATAAGGGTATAATATA[G/T]AATC<br>TACTGTTCTGAATGACATTTAATGAAAATGGTCCCTTCAAATGCAAGCACACAATACATCAA<br>GGTGCATAGTTTCACAAGTACATTCACAGGATCTATAATGTAAACCTGTGCCATAGTAGTTA<br>CAGAAAGCTTATTTACAATACAATAACGAGCTTATTAAAACATGCCCTATAT |
| >Gm20_3241649 | GGGCCAAAGTTAACAACTTACGTTATTGAAGATTGGAGAGGCAAAAGAAGAAAAAATCCGG<br>GCAGCATTTTATAATCTTGGCCAGAGAATGAAAATAAAGCAGAAATTTTAGGTCATCCATTT<br>CTATCCACAATGACATGGCATATAACATAAGGGTATAATATATAATCTACTGTTCT[T/A]AAT<br>GACATTTAATGAAAATGGTCCCTTCAAATGCAAGCACACAATACATCAAGGTGCATAGTTTC<br>ACAAGTACATTCACAGGATCTATAATGTAAACCTGTGCCATAGTAGTTACAGAAAGCTTATT<br>TACAATACAATAACGAGCTTATTAAAACATGCCCTATATAATCTCCAACATGT |
| >Gm20_3241657 | TGGCCAGAGAATGAAAATAAAGCAGAAATTTTAGGTCATCCATTTCTATCCACAATGACATG<br>GCATATAACATAAGGGTATAATATATAATCTACTGTTCTGAATGACATTTAATGAAAATGGTC<br>CCTTCAAATGCAAGCACACAATACATCAAGGTGCATAGTTTCACAAGTACATTC[T/G]CAGG<br>ATCTATAATGTAAACCTGTGCCATAGTAGTTACAGAAAGCTTATTTACAATACAATAACGAG<br>CTTATTAAAACATGCCCTATATAATCTCCAACATGTCTTGTTAGGCAGCTTTGGCAAAACCA<br>ACTCGGAGATTGCCATAGTCAAAGACGGTGTGATATACCCTCATGAAAACAT |
| >Gm20_3241662 | CATGGCATATAACATAAGGGTATAATATATAATCTACTGTTCTGAATGACATTTAATGAAAAT<br>GGTCCCTTCAAATGCAAGCACACAATACATCAAGGTGCATAGTTTCACAAGTACATTCACA<br>GGATCTATAATGTAAACCTGTGCCATAGTAGTTACAGAAAGCTTATTTACAATAC[C/T]ATAA<br>CGAGCTTATTAAAACATGCCCTATATAATCTCCAACATGTCTTGTTAGGCAGCTTTGGCAAA<br>ACCAACTCGGAGATTGCCATAGTCAAAGACGGTGTGATATACCCTCATGAAAACATCCCCA |

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| | AGAATCCTTCAGGCAGATAGTGACAGCAGAATCAGAAAAATAAATGGAGGCCA |
| >Gm20_3241901 | TATTCATGAGATTTTCCACAATAAAATATACATTTCCAGAGAAATCCTGATCAAACTAAGTTT<br>TGTTTTGCTAACCTGCCAGTAACCCTTTTTAGTAACTGGAACATAGATATGTTCTCCTTTGAA<br>GTGTTTAGGATCAACACCTCCAAAAACTAGTTCACCACCATTTTTCACTTTTG[G/C]ATCACC<br>ATTGAGCCAAAAAGAGAACACCTGTTCGCTTACAAGATTTTGCTTCACCATATTGTACCTGT<br>AGTTTATAATGTAGCAGAAATAAAAGGACATAAAAGACTTATCATTTGTCCTTCTGACATGG<br>GAATCAGATGTAAATGAATTAACAAAGGACAGGATGAAACATACCATACT |
| >Gm20_3243654 | CAGTCCCTAAATAAAATTCAATAAAATGTAATTAAATGATATTAAATAAAATCAACGTAAATT<br>ATACAAATGTCGTCCCCCTGTTATAATACTAACCCGGCCTGGGTCACTTGACTCCGGCACA<br>AGGAAAGCTGCTTCTTCTTTGCAAAGGCGGCGAGGCACCAACGCTCTCTAGCTCC[C/A]GT<br>CTCTTTGTATTTTGAGGTAATTCTTTTACCATTCTGAACTGAAGCTTCAATTCAGCTTCAGCT<br>TCTTCCCTTTCATGCTTATAACGAGTTTCTTTCTGTTAAACCTCATGTTGCTGCAACCTGAGT<br>GCAATTTATTCGTTTAGCCCTTATCTAACATGCTCCTTTAATTCTGTTTCTG |
| >Gm20_3244004 | CTTATGTATTCTCTCAATCTTTGTTGGTTATGCAGGTCCTCGAATTACAAATCCTAGGAGTC<br>TTCGTTGGGCAGCATGTGGAGCTGTAACTGCGAGCTCAGGCACGGCTTTGCTGGTTCGTT<br>TGTTTAGTCCTGAATGTGAGCCCCAGAATATAGCTGCTTATGACAATAAAAACTAAC[T/C]G<br>GTGTTGTCACCCCCTTTCTTTTTCCCCTACTGATAACATCATAATATACTTGATGAGGTAGG<br>TTGCAATTATCTCGCATGTGTAAGTTTTATGGTATGGATGACATTTTCTGGCACATCACTAA<br>GGGAAAATTTGGCTAATTAATCCAACTATTCTTAGATGCTATAAAGGGTAAAAAA |
| >Gm20_3244014 | GCTTTGCTGGTTCGTTTGTTTAGTCCTGAATGTGAGCCCCAGAATATAGCTGCTTATGACAA<br>TAAAAACTAACTGGTGTTGTCACCCCCTTTCTTTTTCCCCTACTGATAACATCATAATATACT<br>TGATGAGGTAGGTTGCAATTATCTCGCATGTGTAAGTTTTATGGTATGGATGAC[G/A]TTTTC<br>TGGCACATCACTAAGGGAAAATTTGGCTAATTAATCCAACTATTCTTAGATGCTATAAAGGG<br>TAAAAAATTATTTTCATTCTCTTATTTCTCCCCTGAAAATTTTCCTCCAACCATTTTTCATTCC<br>AAATTAGTCGTTCAACTTATTTATTTCACATACCGATTATATCAAGGCT |
| >Gm20_3244785 | CAGGAGTCAAATCCTATGAATAGTTGTTAGTGGGGTGTGTGACAGAAACCATTGAATTTTG<br>CAAGCATAAAAACGAAAAGATGGCAAATGGATTGCAATGATACCCTGCACCAACTCTACAA<br>ATATGAATAATAATAATAAGAAGAAGAAAACAGCAGCATCCATAAAAGGGGTACTTT[T/C]TG<br>CTGGTTGGTTCTTTCCCCGTTTTTATATTCCTAATTATTTCCCATGTCACTATGTTGTGCAAT<br>GAAAGATAATTAATATCACCACACTTTGTCCACATTCTCATTCTCCTCACTCCCATCATCTTT<br>TCCAATGGCCTCCAACGGCGACGCCGTTCATCCCCACCCTTCCAAAAAGATC |
| >Gm20_3244787 | AGTTGTTAGTGGGGTGTGTGACAGAAACCATTGAATTTTGCAAGCATAAAAACGAAAAGAT<br>GGCAAATGGATTGCAATGATACCCTGCACCAACTCTACAAATATGAATAATAATAATAAGAA<br>GAAGAAAACAGCAGCATCCATAAAAGGGGTACTTTATGCTGGTTGGTTCTTTCCCC[A/C]TT<br>TTTATATTCCTAATTATTTCCCATGTCACTATGTTGTGCAATGAAAGATAATTAATATCACCA<br>CACTTTGTCCACATTCTCATTCTCCTCACTCCCATCATCTTTTCCAATGGCCTCCAACGGCG<br>ACGCCGTTCATCCCCACCCTTCCAAAAAGATCAAACTCTTCAGCAATTCCATT |
| >Gm20_3244959 | ATGCTCTGCTCTTAGTTTTAATTAACTCCTCAATAACATATTCGTCCATTTTATATGTGGGAT<br>ACTATTTGCAAATGTTGAGTTTGCACTTTGCTGATTGCGCTATTTTGCCCGGTCTGTTGAAA<br>ATTTCATTGTCTATATATCCAAGTATTTGAGTGGACATTTGTTGTTTAACATTT[C/G]CACTAC<br>TCGTTTCTGCAATATTGCACCATCAGTACTGTAGTGGTCTGGTGGTTGCTTCTTTGATATTT<br>TACAACATTGCTGCTGAAGCACAAATAAACACTCATGATATCCATAGGTTTACACTATTTTG<br>GGTGTATAATTGGAAATTTGCAAACCATTCTATCTCATTAGATGCTGTGT |
| >Gm20_3249452 | GGGACTATTTTGATGAATAACAATCCCCCCATTTACGAAGATCAATTTCCAGAACAACTCTG<br>ACCAATTTACATGAACTACAAACTCCATACAATGAAAGGAACTAATACTAGTTTTCAAAAATT<br>ATGTACATGATCAATATTAATCATAGTAGGTTGTACAACCTACATACCATAAGC[G/C]GCAAT<br>CATTTCCCTCACCTTCACCTCAACTGAATTTTAGCTCATCCATGATCATTTTGGCTGCTCATA<br>ATCACTTAAGTACCTTTGTTCCGTTCTTACTCTAATAACTTTCTGCTCCTACAGACCTACGCA<br>CTGCATCTAATGTAATGCTACATATCATTACAACTCCAACGTATAGCTA |
| >Gm20_3249520 | CCATGAAAAACTTGCTGTCTCTCACTTACCCGAAAGGGCCTGTTCCTGAAGATGAAGATGT<br>TGGTGGTGCTGTTGGAATAGATGGTGCAGGTGTTAATGGACTTGGTGGTGGTAGTGTTGTT<br>GGACTTGATTGCGTAGGTGGTGTTGGGGGTGATGATGACTTTGGCGTTGTTGTTGTT[C/A]T<br>TGATGATGATGATGGGAAGATGCACGAACCCGTGCCTATTCACAATTCAGAACAACCAGTT<br>AAAAATGGGCACTAGTTTAGATTAAAATAAAACTTAATTTAAAACTTACTGAATAAGTACTTA<br>TTATTTAAGCACTTATATATATATATCTTGTTTCTACAATTCAAGTGAAAAATTG |
| >Gm20_3250703 | CTAAGCTAACTAGCAAGTCAAATGAAAGTATGAAGGGTGAAATCACTTTCTGATATTTCTTA<br>GTAATGTTCATAATCCATTCCATGAGGACTCACTTTACAGATACATCACAATCACAATCACA |

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| 5 | ATTGCATGCTTCTCTTCTCTTTTACTGCACTGGAAATTTCCAATTGGATGTATGC[G/T]TATTC<br>CTATTGCCTTGTAAAACATCTAATTCTATTCCCTTCCACCCACACTCTTAACTCCACCCTTTC<br>TTCTTATCATCCCCACCCAACTTACATTTACGCTCACATTTCCTAAACCCACTAAGGATTTTC<br>AGCTTTCATCTATTTTTGACAACTGGGTTCTTTGTCTTCCATGTTCTTT |
| >Gm20_3254695 2 | GGACGGAATGGATTTGCTTTTTTCTGTCTCTTAAATTCTTGTTTAAACGGTGGTGCGACTTT<br>CCTATTTAGTTCTGTTTTTATGAAGCCTGTTCACTGCAATTTTGCTTCTGAAAAAAAAGGATA<br>TATATATATATATATATTAATTATGGTGGAATTGTTCATTCTGGCAGGTAAATG[A/G]ATGGTT<br>TTTGAGCAACAGCAGTTAAAAGAGAAAAGGGATTCAGCGAAGATGACATCGGTTGGTGTG<br>GCACCAACTTCGGGTTTGAGAGAAGCCAGTGGGCATGGAGCAGCAGCTGCGGATAGATTG<br>CCAGAGGAGATGAACGATATGAAAATTAGGGATGATAGAGTATGTAATTTGTAA |
| >Gm20_3255163 6 | AAAATAAGAAATAAATAAATAAATAAATAAAACTGACAATTTTATTATAATATAAAAAAAAAAC<br>ACAAATAAATGACTAAGATATCCGGTGGGCGACGCTAGATATATCGAGAAGTTTTCCTGAA<br>ATTTCAGTTTGTGTTAGTTTAGATTGAAAGCGAGAATGGCAGTGAAGAAGTGTT[C/T]TTGC<br>GAGAAGCAATTCCAAGACACAGCAGCGGATCGGAAACGGCACGTTCTGGGTATTCAACAG<br>CAGCAGGCCAAAGCTCGCTGGTACGATTCCTTCAAACAGCAACAAATCCCTCCCGTTCCCA<br>ATCGATCCCTTTGCTTTCACTTCGTCAACACGGTATCATCTCAAGCATTCTGCTC |
| >Gm20_3255166 1 | AATAAAACTGACAATTTTATTATAATATAAAAAAAAAACACAAATAAATGACTAAGATATCCG<br>GTGGGCGACGCTAGATATATCGAGAAGTTTTCCTGAAATTTCAGTTTGTGTTAGTTTAGATT<br>GAAAGCGAGAATGGCAGTGAAGAAGTGTTATTGCGAGAAGCAATTCCAAGACAC[A/C]GCA<br>GCGGATCGGAAACGGCACGTTCTGGGTATTCAACAGCAGCAGGCCAAAGCTCGCTGGTAC<br>GATTCCTTCAAACAGCAACAAATCCCTCCCGTTCCCAATCGATCCCTTTGCTTTCACTTCGT<br>CAACACGGTATCATCTCAAGCATTCTGCTCTTTTCAATCCTCATTGACTCTCTCT |
| >Gm20_3255168 6 | TATAAAAAAAAAACACAAATAAATGACTAAGATATCCGGTGGGCGACGCTAGATATATCGA<br>GAAGTTTTCCTGAAATTTCAGTTTGTGTTAGTTTAGATTGAAAGCGAGAATGGCAGTGAAGA<br>AGTGTTATTGCGAGAAGCAATTCCAAGACACAGCAGCGGATCGGAAACGGCACGTT[T/A]T<br>GGGTATTCAACAGCAGCAGGCCAAAGCTCGCTGGTACGATTCCTTCAAACAGCAACAAATC<br>CCTCCCGTTCCCAATCGATCCCTTTGCTTTCACTTCGTCAACACGGTATCATCTCAAGCATT<br>CTGCTCTTTTCAATCCTCATTGACTCTCTCTATGTTTAGGGATTTTGCCGTTACGG |
| >Gm20_3255484 8 | TAGTTTGATCCTAATAAATTAGAATTTAGTGTTCTTTTAGATTCTTAGTTTAATGAAGTTAATT<br>TTAACGAATTCATTAGTTTTAGTTGTGTTTTGTAGAGTTTTGGTACATCAACAACAAAGGAAG<br>AATTTGAGTTGATGAAGCAGCCCCCTTGCACATGCTTAATACGTTAGAGTTA[C/T]TTTGGAA<br>GGTCACATGGTAAGTATCTAGAGGTTGCTGGGAGAAATTTGAAGTTTGGTGTGTGCTGAGC<br>TAATTGTTCTCACTACCATTGATTTGGGTTAAGTGCACACCTCAAGCTTAGCGCACAGTCAC<br>TTAATCAAGTGTTGTTTTTGTATGCGCGTTTAGCGCAGAAGTTGGGCTTA |
| >Gm20_3255982 6 | TTAAGCTCAACACACTGTCACAGCAAACCTACCCAAGAACATCCCCAAACAGAGGAAATAG<br>TTAGTGATCTGAATGATAGAACTCTACTAATAGGAACTGTTAATGGCTTCATCAGTCCATTG<br>AGCATCTAGCCGAAAAACCACTTTGTGAATTTTTAGTTTTCAATTTTACTCGGACA[T/C]GCG<br>TTTCGTATACAATTCATTCATAACCAAGTTACAACCAAAAAAAAGAACAGTATCTTAAGGAC<br>AAGGAAAATGAACATTTATTCACAAGGTAAGACTGAAGATGTCAACATGTCTTGACAATTTG<br>TTGAAGCCTTTAATCAGAAACATTTACTGATGAAAGCAAACGCTTCTGCTACA |
| >Gm20_3261952 2 | ATAATATATGACTAATACTATTGTATAAGATTAATTGATTGAGTTAATTAAGGAAGTACCTGT<br>TCAGCAAAGGAAGTGGGCTTAGTGACTTGGACAGTTTGAAGGAGGTCACGGTAGGTATCC<br>AGATTGGGCTCATAAACAAACATGCCAGCATTGAAATAGAGAGGAGGCTTGGGCCC[T/A]A<br>AGTGAGTGGGCCACTGAACCTTATGAGGGCACTGCTGGCAGTATCCGATTTGATACTGCA<br>GAGTGTGGCCCCAAGTGGGCTCACAAAAACAGTCCATCACCGCATAAAAGTAGTTATCAG<br>GCAAGTCAAACAAGTGGTCAATATTGTCAAACACTTGTATATCACCGTCTAGGTATATC |
| >Gm20_3261956 6 | TAATTAAGGAAGTACCTGTTCAGCAAAGGAAGTGGGCTTAGTGACTTGGACAGTTTGAAGG<br>AGGTCACGGTAGGTATCCAGATTGGGCTCATAAACAAACATGCCAGCATTGAAATAGAGAG<br>GAGGCTTGGGCCCAAAGTGAGTGGGCCACTGAACCTTATGAGGGCACTGCTGGCAGT[C/T]<br>TCCGATTTGATACTGCAGAGTGTGGCCCCAAGTGGGCTCACAAAAACAGTCCATCACCGCA<br>TAAAAGTAGTTATCAGGCAAGTCAAACAAGTGGTCAATATTGTCAAACACTTGTATATCACC<br>GTCTAGGTATATCATCTTGCTGAACTCCACAAACTGAGATATACATTTTGCAATCAC |
| >Gm20_3268686 6 | AAATTTTTTGGCTTACCCTCTTCGAATTTCGCCCCTTCACCAATGCATTTCAGTTTTAGCACA<br>TTTAACAGCGACGTTTCCACCTTCAAGGTTCGAAATTTCTCGAACTCTGTTGAGACCCGCAT<br>CAATGACAACAATTTTGAGAGGATTTACGTACAGGGTGGAATGAACAATGTGAA[T/C]CCGT<br>TGGTGGTGGAAGGTGTTCATAAGGATGATGAGAGTGTTGCAGGAGAGAAGAATTTAGGTG<br>GTGATGTGAATGCGAGCGTGGGAAAGAGTAAAGGGGAGGACTCAGAGGTGGAAAAAGAA |

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| | GCATGGAAGTTGTTGCAGGGTGCTGTTGTGACTTATTGTGGCAACCCCGTGGGAACT |
| >Gm20_32689954 | ATGTATCAAACATGGACCATAGCTGGTTTCCTTACATCCAAGATGCTTTTGAAGAATCCTGA<br>GATGGCATCCATGTTATTCTGGGAGGAGGATTACGAGCTTCTTGATATATGTGTTTGTGGA<br>CTTAGCAAGAGTGGCAGGAAAAGGTGTTCCCGTGGTGCCGCAAGGTCTCAAATTCG[C/T]G<br>TATGATGAATTCCTAGGGAAGGGTACATTCATAGCCAGGGGATCATATATTTATATTGTGCG<br>TTTGGTAGGTTATAGTAAAAGTTAAATTGGAAAATTAACACCTTCTCCTTTGTTCTAGGAGG<br>GCGATTCTCACATTTTTACTTTTTTTTTGCATTGAGGGGATAGAGATTTAAAAGT |
| >Gm20_32691411 | GAAAAGAAAGTACTAAAAATAAGGGGGGAAAGTAAACCCATAAACAGCTGACAGGTGTCTT<br>GGTTCCATTTACTACCAGTGAGTGGAGTTTGTAGACAGTAGTAGAAAGGGAAAGAGGGTTG<br>ATAGAAGAGAAGGGTTTAGGATTTTGCACAACTCACTCATGGAGGAGGAAGAAGCCC[T/C]<br>AGACGTTATATGCGAGCTGGAAAACGTTCAAGGCTTAGTGGACGCCCTCACCGCCGTTCG<br>GTGGAAGCGCCAGCAGGTAAGTAAATAATAATGCCCTAACCCTAACCCTAACCCTAGCCCT<br>AACCCTAGCCCTTAATTTAATTAACGACCTACCTGGCTAGGACGCCGTGTTGGAGTTGT |
| >Gm20_32710636 | CCTCTTGGCGGACGACAAAACCACGAAGAAGTTGAGAGAAGTCCTCGGTCTCCGCCACCT<br>CCGCCCTCTTCCCCCGACGGAGACTGACCGCGAATTCAAATTCGGCGACGAGGTTGATGC<br>GTTCCACAACGACGGTTGGTGGGAGGGCCACATAACCCAGGAATTGGAGAACGAAAGAT[<br>C/T]TGCGGTGTATTTCAGAGTGTCCAAGGAGCAATTGGTCTTTTCCAAGGAACAACTCAGG<br>CTCCACCGGGAGTGGTTAAATCACGATTGGGTCCCACCACTGCAGCAGAAACAACAAAGG<br>CAACAGGTGCCTACGATTCGCCCTTGTTTTCTTCTCATTTGCTGCATTATAGAGATTTAGGG |
| >Gm20_32710742 | GACGAGGTTGATGCGTTCCACAACGACGGTTGGTGGGAGGGCCACATAACCCAGGAATTG<br>GAGAACGAAAGATTTGCGGTGTATTTCAGAGTGTCCAAGGAGCAATTGGTCTTTTCCAAGG<br>AACAACTCAGGCTCCACCGGGAGTGGTTAAATCACGATTGGGTCCCACCACTGCAGCA[A/<br>G]AAACAACAAAGGCAACAGGTGCCTACGATTCGCCCTTGTTTTCTTCTCATTTGCTGCATT<br>ATAGAGATTTAGGGCTAACTTGTATATATGTTAATTTGATTCTAGTTTTAATGTAAAAATTTTA<br>TTCTTATTTGCTTCGTTAGAGATGACACTTGACTCTAGGGCTAGGGTATTGCTAAA |
| >Gm20_32711038 | AAATTTTATTCTTATTTGCTTCGTTAGAGATGACACTTGACTCTAGGGCTAGGGTATTGCTA<br>AATTGCATGCATGTTAATTTGACTCTAGTTTAATGTAATGGTGGTTGTGTTAATTACAGGGC<br>AATGGTGAATCGAAGAAAGTGTTGTTGACACCGAATGTGAAATCTGTTGAAACTG[G/A]AAA<br>GGGGAAGGGGATAGGTGTGGGGGCGATAGTTGAGGTTAGCAGTGATGAAGATGGGTTCA<br>GTGGAGCTTGGTTTGCTGCCACTGTTGTTGAGGCACTGGGGAAGGATAAGTTCCTTGTTGA<br>GTACCATGATCTGTTGGCTGATGATGATTCCCAGCTTAGAGAGGAGATTGATGCTCT |
| >Gm20_32711049 | TTATTTGCTTCGTTAGAGATGACACTTGACTCTAGGGCTAGGGTATTGCTAAATTGCATGCA<br>TGTTAATTTGACTCTAGTTTAATGTAATGGTGGTTGTGTTAATTACAGGGCAATGGTGAATC<br>GAAGAAAGTGTTGTTGACACCGAATGTGAAATCTGTTGAAACTGTAAAGGGGAAG[T/C]GGA<br>TAGGTGTGGGGGCGATAGTTGAGGTTAGCAGTGATGAAGATGGGTTCAGTGGAGCTTGGT<br>TTGCTGCCACTGTTGTTGAGGCACTGGGGAAGGATAAGTTCCTTGTTGAGTACCATGATCT<br>GTTGGCTGATGATGATTCCCAGCTTAGAGAGGAGATTGATGCTCTGCACATTAGGC |
| >Gm20_32711335 | TGTTGAGTACCATGATCTGTTGGCTGATGATGATTCCCAGCTTAGAGAGGAGATTGATGCT<br>CTGCACATTAGGCCTCATCCGCTGGACACGGATGTTGATGGTCAATTCAGTATTCTTGATG<br>AAGTTGATGCTTTCTACAATGATGGTTGGTGGGTTGGTGTGATTTCCAAGGCTCTTG[T/A]A<br>GATTCAAGGTATGTAGTTTACTTCAGGTCTTCTAATGAAGAACTGGAGTTTGAGAACTCCCA<br>GTTGAGGCTGCACCAGGACTGGATTGGTGGCAAATGGGTCATGCCTTGTAAGGTATGGAT<br>ATTCACTGCTACTCTTTTTACTGTTAAAGTATGTATGTTGGAACTCTTTTAAAATTT |
| >Gm20_32733927 | TAAAATTTGACAAAACACATGTGAAAGCAAGGTGTGGAGCGATATGGATCACAGAACTTAC<br>CATCTCCCCTAGGCACTTGAGGCAAACACATAGTATCTGAAGAAAAATTCTGGAATTCGGC<br>ACCTGGCAATGATGATTTTGATTCACCATTTTCAATTAATTGTGTTGACCTAACGAC[T/C]TT<br>GCCCTGTTTCTGACAAAGCTCACAAACGTACTGTGTAGATTCATTCTGGTAGACCACAATAA<br>TATCAGAAGCAAGAAAAGAGAACAAAGAACCCCAGCAAACAAATAGAAAAAAGATTAGAGT<br>CAAGAAATTTAAGAAGATGGAGAAGGGATAAATTTTCTGGAGTACAAATTCAGAA |
| >Gm20_32733954 | CAAGGTGTGGAGCGATATGGATCACAGAACTTACCATCTCCCCTAGGCACTTGAGGCAAAC<br>ACATAGTATCTGAAGAAAAATTCTGGAATTCGGCACCTGGCAATGATGATTTTGATTCACCA<br>TTTTCAATTAATTGTGTTGACCTAACGACCTTGCCCTGTTTCTGACAAAGCTCACA[C/T]ACG<br>TACTGTGTAGATTCATTCTGGTAGACCACAATAATATCAGAAGCAAGAAAAGAGAACAAAGA<br>ACCCCAGCAAACAAATAGAAAAAAGATTAGAGTCAAGAAATTTAAGAAGATGGAGAAGGGA<br>TAAATTTTCTGGAGTACAAATTCAGAAATGTAGTTAATCCAAGTTATAGGACCC |
| >Gm20_3273618 | CAGAGAGATGCTTTCCGGCATTTGAGATATCCGGTGACTTTAACAGCGGATGAGAACTGAG<br>AGTGACAAGTTCATCGACGATCCGAATAGATAGAGAAGTGAATCCACATTCCTGGGCTACT |

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| 0 | TTGTCGTTTAATGGCTGATGACAATTGGCGAGCTTGAAATCAGTGTCGTGAAACAGA[C/T]A<br>GTTGTAGGCTTTGAGGGCTTCGATGTGGATCTCGAGAGAGGATAAGTTGCCGCCAACCTG<br>TTAAAGAGAAATGAGTAGGGAATGAAAAAAAGGAGAGGGGAATAGTATAGTTACATACGGT<br>GACATTGACGCCGCGGGAAGAAAGCCGAACACGACCGAGGAGGCTGAGGGAGGAGCAG |
| >Gm20_32736338 | AAATCAGTGTCGTGAAACAGAGAGTTGTAGGCTTTGAGGGCTTCGATGTGGATCTCGAGAG<br>AGGATAAGTTGCCGCCAACCTGTTAAAGAGAAATGAGTAGGGAATGAAAAAAAGGAGAGG<br>GGAATAGTATAGTTACATACGGTGACATTGACGCCGCGGGAAGAAAGCCGAACACGAC[G/<br>A]GAGGAGGCTGAGGGAGGAGCAGTTGGAGTGGTAGAAAGTGAGGAGGTCGTCGAGGTTG<br>GGAATTTCAGCGTACTTGTAATAAAGGAGCACGCCGTACATTTCTTCGGACATAGTAGGGT<br>TTAGGGTTTATGCTCGCCGGTGCTGTCACTGCGGCTGCAGGGTTGCGCTATTCAACAGCG<br>T |
| >Gm20_32736480 | GTGACATTGACGCCGCGGGAAGAAAGCCGAACACGACCGAGGAGGCTGAGGGAGGAGCA<br>GTTGGAGTGGTAGAAAGTGAGGAGGTCGTCGAGGTTGGGAATTTCAGCGTACTTGTAATAA<br>AGGAGCACGCCGTACATTTCTTCGGACATAGTAGGGTTTAGGGTTTATGCTCGCCGGTG[C/<br>T]TGTCACTGCGGCTGCAGGGTTGCGCTATTCAACAGCGTAGGGTGGGGCTGGGCTTATGT<br>CCGGTTGCCCCATATCTTTTTGTTTTTCTTTTTCTTTTTCTTTTTGCTTATGTCGGATAAATAA<br>AAATTATTTTATTAGTATAAAAAATATAATAATTTTATCAAATCATTAAGTTTGTGG |
| >Gm20_32736502 | AAAGCCGAACACGACCGAGGAGGCTGAGGGAGGAGCAGTTGGAGTGGTAGAAAGTGAGG<br>AGGTCGTCGAGGTTGGGAATTTCAGCGTACTTGTAATAAAGGAGCACGCCGTACATTTCTT<br>CGGACATAGTAGGGTTTAGGGTTTATGCTCGCCGGTGCTGTCACTGCGGCTGCAGGGTT[A<br>/G]CGCTATTCAACAGCGTAGGGTGGGGCTGGGCTTATGTCCGGTTGCCCCATATCTTTTTG<br>TTTTTCTTTTTCTTTTTCTTTTTGCTTATGTCGGATAAATAAAAATTATTTTATTAGTATAAAAA<br>ATATAATAATTTTATCAAATCATTAAGTTTGTGGGATTATTTTGAATAATGCTCAA |
| >Gm20_32766243 | GCGGCGGAGAGCCTCCACGAGGCGGCGGGAGTAGATCCGCTGCTCCTCTTCGGATCTCC<br>ACGGGGAGGCGGCAGCCGAATTTTGATCGGCGGCGGCGTGGTCTCCGATTTTTCTGCGCT<br>TCTTGTGATTGGATTCTCGCAACGTGTCGGAATTACTAGAATCTACGCTCGGGTCGAAAG[G<br>/A]CGCCATAGATGATTGCAATTGAATGATTTGTTCGGTGAGATGAAGAGAGAAGAAATTGA<br>ATGAACAATGAAGAACGAAAGAAGAAGTTGATGGTGTTTGAAGCCAAGTGAGGGGAAGAA<br>AATAGAAGAAAAGAAAGAGTTTTAAAGGAGTTCAAAGTCACGGGGAACCACGCGTCCTTTA |
| >Gm20_32766318 | CGAATTTTGATCGGCGGCGGCGTGGTCTCCGATTTTTCTGCGCTTCTTGTGATTGGATTCT<br>CGCAACGTGTCGGAATTACTAGAATCTACGCTCGGGTCGAAAGACGCCATAGATGATTGCA<br>ATTGAATGATTTGTTCGGTGAGATGAAGAGAGAAGAAATTGAATGAACAATGAAGAA[G/A]G<br>AAAGAAGAAGTTGATGGTGTTTGAAGCCAAGTGAGGGGAAGAAAATAGAAGAAAAGAAAG<br>AGTTTTAAAGGAGTTCAAAGTCACGGGGAACCACGCGTCCTTTAGTTACTCACATTTATTTT<br>GCGCCTACTGTTTTCTTTCCGCTCGTTTTTTCTGTTTTTTTATCTATTAAAATAATA |
| >Gm20_36069702 | CTCAACAACCTCAGCACAATCCTCATTCCCAACATTTGTTGCTCCAACTGTTGTATTTTCTG<br>AGATGGTGGAAGGTTTAGAATGCATCTTAGGAGAAAGGGTAGCAAGGAGACCATGGACAA<br>CAAAGAGGATGGTGTCCTTAAGCTCAGGGGATGTAAATTCGGAAAGCTGAGCTACCT[A/T]<br>CTCCATAGCCACACCCAACTAAATTACTAATATAAATTGAAAATAAACTGAAAATATAGTTAA<br>ATGAAATAGGCATGCACAAGTTAATAATGTCGCAAATACAATTACGAAGGAATACAAGAGAA<br>CATGCTTCTTTAAATGTTTGAATGAATACTTGGATTTATCAAATCCTCAAACTTC |
| >Gm20_39942636 | TTATTACTTTTTCTTAAGTTCTATAATTCAGTATTTACTTATTAATCATCCGTGCTCTGACCTT<br>ATAGTTTAAAGGAACCTTTTTGCCTTTATTTTTCACATTATATAGGTAGCAAAAAAAATGATT<br>GGATAAAGAAAGAAGCAAGTGGAAAGTTTAAATTTATTGGATAAATATCTCT[C/A]AGGTTTA<br>GAGAATTGAAAAGATTTCATTGATAATTGAGCAAACACAATGAGTGCTCCACCTCATCATGA<br>TGATGACGACGACAACGAAGAAGTTTTCCTTGATGAGTCTGACATCATCCATGAAGTTGCC<br>ATGGATAATGAAGATCTTCCTGACGCTGATGATGATTCTGAACTCCTCGG |
| >Gm20_41042731 | CATTTGTTAGTGATGCTGAGCAGCTGTGCTTGGTGTTGTCACATTAGCTTGTTTCAGGAAAT<br>TTTGACAGTGGTATTTCAATTTTTATCATGCAAATCTTTATAGGACACCATGTTCAATGTCCT<br>GGAATTTGGTCTTCCATGATTTGGCTTGGCATATTTTCACTTCAGAAATCAATA[G/T]ATTCC<br>CTCAATACTGTATCTAGTTGAAGATAATTAGTAAGTCTGAGTTATACATCTCAAACACACTTG<br>TTACTAAAGGTACCGCTTATTGTGATGGTGTACAAGTGTTAATGAGATTTCATTTGATATGTT<br>AACTTCGCAACCGTACCGCTTATATTCTAGGAGTTATTGTATTCGTGCA |
| >Gm20_42627040 | TGACCCCTTATAGCTTATTATCTGTTATTTCTCAGAACTGCGTTTGAGAATCCATTACCAGTC<br>CTATCAAGTATAATCAACTCATTTCTCATTTGCAAATTGGTAGTATTTTAACCATGCTATATA<br>ACCTAAGAGTCAAGGACATTGACGCCAGAAATTTTGGGGAAGAAAAAACACAA[A/C]AAAAA<br>AGAAGCAAAACTTAAAAAGAAGGCATACTTCCTCCTCGTGAAGGGATGTTACTGTTTGGTC |

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| | TCCGCTCTTCAATGTATACGTGTCTTCCTGCTACCTCAACAGATCCTGCCTGCAAAGATACA<br>AAACAAACATGAGCCAACAGATTCTGAAATCAGAAAAAAAGAGACTTGTAAG |
| >Gm20_<br>4262704<br>3 | CCCCTTATAGCTTATTATCTGTTATTTCTCAGAACTGCGTTTGAGAATCCATTACCAGTCCTA<br>TCAAGTATAATCAACTCATTTCTCATTTGCAAATTGGTAGTATTTTAACCATGCTATATAACC<br>TAAGAGTCAAGGACATTGACGCCAGAAATTTTGGGGAAGAAAAAACACAATAA[T/C]AAAGA<br>AGCAAAACTTAAAAAGAAGGCATACTTCCTCCTCGTGAAGGGATGTTACTGTTTGGTCTCC<br>GCTCTTCAATGTATACGTGTCTTCCTGCTACCTCAACAGATCCTGCCTGCAAAGATACAAAA<br>CAAACATGAGCCAACAGATTCTGAAATCAGAAAAAAAGAGACTTGTAAGGTG |
| >Gm20_<br>4267063<br>4 | GGGTTTCTGCGTCCAAGAGAATCAAGGCTCTTTGACTCTGGGTTGGCATAGCCGCCCCCT<br>AATTGCAGCTTCGGCTTGGCAAGCCGCGCCTCTGGGAGACGACGAAACGCTGCGTTTTGA<br>GCATTGAGGAAAAGAACAGAACAGAACAGATCACTTGTTTTTGTTTATTCTAGTAACTA[G/T]<br>TAGCAGTAGTAGTACACGGGAAGAGTGGTGAATAATAATAATGTGGTCATTTTTGCGTAAAA<br>TTCTTCTGTTGTTGAATTCTCTATCACACGTGACTTTGGTTGGGGTTTTTCTCTTTTTGTCAA<br>AAACCCAACCAAAGTGCTTTTCTCTTTTTTAGTCAATTGAGTCATACCACTGCCT |
| >Gm20_<br>4269046<br>1 | TTCCACACGCGAGGAAAGGTTACATAACAAGAACGTATGCTAGACAGTAAACTCTTTTATTA<br>TACTGATCAATCCCAAGGTTTTGTTTTCGAACATTACACCACTAAGATGTCTCAGAGAAACG<br>ACACATAACGTAACTATACATACACACTATATAGTACTACATAATCCAATTTCAA[C/T]CCATC<br>TTGGCATCACTAGTAGCATGCATTTTAGCACATTAATCAAATAAGCTCCCATCAAAGCATCT<br>TCTAACAGCTTCTTTAGAGAGGAAACCTTCCTCATCCCTAGCCAGAATGTACAGAACCCCC<br>CATTCAAGTTTAGCTGCAAGCCTGCAAATTAGTAAAACACACATTCCATATA |
| >Gm20_<br>4269054<br>6 | TTTTCGAACATTACACCACTAAGATGTCTCAGAGAAACGACACATAACGTAACTATACATAC<br>ACACTATATAGTACTACATAATCCAATTTCAACCCATCTTGGCATCACTAGTAGCATGCATTT<br>TAGCACATTAATCAAATAAGCTCCCATCAAAGCATCTTCTAACAGCTTCTTTAG[C/A]GAGGA<br>AACCTTCCTCATCCCTAGCCAGAATGTACAGAACCCCCCATTCAAGTTTAGCTGCAAGCCT<br>GCAAATTAGTAAAACACACATTCCATATATGTAACATTTCATTGGATCTATACAATGAAAGTA<br>ATTTGAGATGTCAGAAAATTCGCCAGCCAAATATGTCAAACGCATTTCGGT |
| >Gm20_<br>4446496<br>5 | GAATTAAGAAAAATAATTCCTAAAAGACTGTTAGTTCCAGGCTCAAATTCAATATCAGACTA<br>AAGGATACCTATATTTCAAGCTTGTGCTGGCTAAGAATGTAGTTTTCCTTATTTTCTTAAGTT<br>GAGAGTATTATGCCATGGACTTCACCACCAAGAAGCAAAACTAAAAATTAGCAT[G/A]CCTA<br>TCTTTATAAGCCGAAGCCAAATTAGCATGGGCTTCAGCCATGGTGGGTCTGACAGCAATTG<br>CCCGTATGTAATCCTGGATAGCATCACTAACTCTACCAATCTCCTTATACGTATTGCCTCTA<br>TTAACTAGCCCATCAGCTGCCAAGGGATCAATGCGGAGGACCTCATTGTAGCA |
| >Gm20_<br>4465701<br>9 | AATTCCTCGAACAGACCAGGACTCCGCATGGAATCATCTAAAACTGTGTGACAGTTACCAG<br>CCAAAAGTCTAGCTTTCTTGTGGTCACTTTCCAGCTTCCCAACATTTTCCTGCAAGGCAACA<br>AGTGCAGCGGCACAAAGGATGCCAATCTGTCTCATTCCACCTCCTAAGGTTTTCCG[A/G]AG<br>TCGTCTAGCCTAAAAAAATATAATAAACTAGACTTCAACATCAGTTGCTCAGGAAGTAACTA<br>CCTGCTATTAATTTCCCTGTAAAATTATTGAACTACCTTGGCAATAAAATTTTTGGAACCAAC<br>AATAACAGATCCAACTGGAGCACCTATACCTTTAGATAGGCAAACCTAATCAT |
| >Gm20_<br>4510435<br>5 | AACAAGGTGCTACCTGCTTTGTGTAAGATCCAGCAAGAAAGAAATTCTTCACTGGCGTCTTT<br>TGATCAGGTCTATATGGATCTTTACCAGGTCCCTCACGGTACAAAGATTGACCAATTTTAAC<br>AACAGAAGACCAAGTGACTTCCAAACCTTGAGATGATGGGAACAGCGCTAAAACC[T/C]AAT<br>AAAATTTTGAAAATCAATGTAATGACAAGAGAACTGAATATCTACCATTGATTAAAAAAACCC<br>AAATAGACTACAAAATGGAACCTGTGATTTGATTTGTGATGGAAATTATACAAAATGCTATG<br>CTGATGATATCAGAACAATCCAGTCAGCCATCAAATTAGCAGCATGAACAAA |
| >Gm20_<br>4575181<br>7 | TTTGTGAGTGTTACTGTTGAATCGATTGGATTGGCATTAGGTTGATCTGAAATACGCAATTG<br>ACATGGCGAGCGCGATGGTAGAGGACGCGAACTTCGAAGATGACCAACTAGCCAATATGA<br>CCACCGACGACATCGTCAGAGCTTCACGTCTTCTCGACAACGAGATTCGCATCCTCA[C/T]G<br>GTATACTCTTTTCTTTCTGTTTCGTTTTTTTCCCTGCTTCTGTAACCCTAACCCTATCGATTA<br>CACTATCTTTTTTCCTTCTTCCGTTTTCTTAGCCATTAGGGTTTCTGATTTTAATTGAATTGTC<br>CTTCGTGACTGAAGGAAGAGTTGCAGAGGACCAATTTGGAATTGGAATCGTA |
| >Gm20_<br>4611685<br>4 | ATTTATAAAACATTGACCATATAAGTCAGGCAAATATGCACCTAAGAGTTTCATATCCTGGA<br>GGAGTCATGGCAGGAAAATGCCACATGCAAGTTGCCAATTGCAAATCACAGGTAATATACT<br>CACCCAAACATCTCCAGGAGAAGGGAAACCTCTTCCTCATTAGGAGCTTGAATAAT[T/A]TG<br>AGGAATAGAAAAGAGTTAACCCTGCGGTTAACCTCCATTATCAGCAAAAACAAACAAATTGA<br>CTCATCCAGAATGATACTCTTTTACCAATATAATGATAATAGTAGAACATAAAATTGCATACA<br>CCAAAGAAAACCAAAGGAACAAGAATGTATGTTCAACTAGATCAGTATAGATT |

**Supplemental File S1.** This file contains small scripts required to run SNPscript.R I have found many of these functions are also useful for other analyses.

```
#This script was written in the R programming language to determine intervals of significant SNP density based on a bootstrap method.
#Required input for the script is a list of SNPs with chromosomal positions. Output of the script is similar to Figure 2 and Figure 3.
#Created on 04/06/10 by Andrew Severin andrewseverin@gmail.com
#Iowa State University
##########################################################
#This function will give the index number in a matrix given the rowname.
IndexFromGeneCall<-function(inputmatrix,rowname){
match(rowname,rownames(inputmatrix),nomatch=0)
}
##########################################################
#plotting function
#this function will generate intervals of significant clustering of SNPs on soybean chromosomes scaled to the longest chromosome.
ChromosomePlot<-
function(chromosomelength,intervalstart,intervalend,intervalheight,maxNumGenesInCluster,maxchromosomelength,binScales,currentBinScale,SNPcoords){
#The axis labels require resizing depending on the width of the plot
#the following is an estimate of the resizing required
if (maxchromosomelength<750000){
XcexVar<-1
}
if (maxchromosomelength>750000 & maxchromosomelength<12000000){
XcexVar<-(-0.3125)*log(maxchromosomelength/1000000)+0.91
}
if (maxchromosomelength>12000000){
XcexVar<-.1
}
#I make use of the rect function that has input as (xleft, ybottom, xright, ytop)
#keep in mind everything is scaled to Gm18, the largest chromosome
xleft=(1/maxchromosomelength)*intervalstart
ybottom=0
width=(intervalend-intervalstart)/maxchromosomelength
averagepos<-(intervalend+intervalstart)/(2*maxchromosomelength)
average<-(intervalend+intervalstart)/(2)
xright=xleft+width
ytop=intervalheight/maxNumGenesInCluster
rect(0,0,chromosomelength/maxchromosomelength,-0.04) #this draws the chromosome on the bottom
```

```
rect(SNPcoords/maxchromosomelength,0,SNPcoords/maxchromosomelength ,-
0.04,lwd=.1) #this draws the location of each SNP
rect(xleft,ybottom,xright,ytop,border="black",col=rainbow(length(binscales))[whic
h(binscales==currentBinScale)]) #Significant Intervals of SNPs
text(chromosomelength/(2*maxchromosomelength),-
.02,labels=paste("chromosome",i),cex=.5) #chromosome name
text(SNPcoords/maxchromosomelength-2000/maxchromosomelength,-
.02,labels=rownames(SNPcoords),cex=XcexVar,srt=90) #location of each
Interval
axis(1,tick=T,at=intervalstart/maxchromosomelength,labels=intervalstart,cex.axis
=XcexVar,las = 2,lwd=.5) #axis 1
axis(2,tick=T,at=seq(0,1,1/maxNumGenesInCluster),labels=0:maxNumGenesInC
luster,cex.axis=.8) #axis 2
ablineMulti<-function(i){abline(i,0,col="darkgrey",lwd=.1)} #Creates a grid at 2
SNP intervals
sapply(seq(0,1,2/maxNumGenesInCluster),ablineMulti) #sapply to create the grid
}
############################################################
#this function is not used in the SNPscript but is a handy little function.
#Used in a similar script for clustering genes.
identifyGenesOnChromosomeForSoybean<-function(GeneList){
#this loop identifies all gene model names (glymas) on a specified chromosome
if (i<10){
glymas<-GeneList[grep(paste("0",i,"g",sep=""),GeneList)]
}else{
glymas<-GeneList[grep(paste(i,"g",sep=""),GeneList)]
}
return(glymas)
}
identifySNPSOnChromosomeForSoybean<-
function(snpList,chromosomeNumber){
#this loop identifies all SNPs on a specified chromosome
if (chromosomeNumber<10){
snps<-
snpList[grep(paste("Gm0",chromosomeNumber,sep=""),rownames(snpList)),]
}else{
snps<-
snpList[grep(paste("Gm",chromosomeNumber,sep=""),rownames(snpList)),]
}
return(snps) #this will return the snp matrix that corresponds only to the
chromosome of interest
}
############################################################
#this section will take the same number of genes and simulate how the genes will
```

```
fall into the bins based on the 1000(or numofsims) random collections of genes
simulateData<-
function(numofsims,AllGeneCalls,geneCoordinates,SNPS,chromosomeNumber){
#matrix for storing simulations
genesAll<-identifyGenesOnChromosomeForSoybean(AllGeneCalls)
genesSample<-sample(genesAll,dim(SNPS)[1]*numofsims,replace=T)
AllindexCoords<-
function(i){IndexFromGeneCall(geneCoordinates,genesSample[i])}
sampleIndex<-sapply(1:length(genesSample),AllindexCoords)
genesSample<-matrix(genesSample,ncol=dim(SNPS)[1])
sampleIndex<-matrix(sampleIndex,ncol=dim(SNPS)[1])
return(list(genesSample=genesSample,sampleIndex=sampleIndex))
}
#########################################################
#Boostrap function for clustering on a chromosome
#generation of the bin sizes across the chromosome
clusterByBoostrap<-
function(chromosomelength,binsize,geneIndexValues,SNPCoordinates,AllGeneC
alls,numofsims,bootData){
print(SNPCoordinates)
numBins<-floor(chromosomelength/binsize)
#this section will calcluate how many of of the SNPs we are interested in fall into
each bin
breaks1<-seq(0,chromosomelength,binsize)
chromBinsFind<-findInterval(SNPCoordinates,breaks1, rightmost.closed=T)
chromBins<-hist(chromBinsFind,breaks=seq(0,length(breaks1),1),plot=F)$counts
print(chromBins)
sampleIndex<-bootData$sampleIndex #actual data
chromBinsSample<-matrix(0,numofsims,length(breaks1)) #simulated data
for (j in 1:numofsims){
#generation of the bin sizes across the chromosome for the simulated data
breaks1<-seq(0,chromosomelength,binsize)
chromBinsSam<-findInterval(geneCoordinatesAve[sampleIndex[j,]],breaks1,
rightmost.closed=T)
chromBinsSample[j,]<-
hist(chromBinsSam,breaks=seq(0,length(breaks1),1),plot=F)$counts
}
#Average and standard deviation of the simulated data
chrombinsAve<-colMeans(chromBinsSample)
chrombinsSD<-sd(chromBinsSample)
#this section is the determination of the bins that are significant
over3stdev<-which((chromBins-(chrombinsAve+3*chrombinsSD))>0)
over3stdevBy<-(chromBins-(chrombinsAve+3*chrombinsSD))[over3stdev]
over3stdevZscore<-round(((chromBins-
```

```
(chrombinsAve))[over3stdev])/chrombinsSD[over3stdev],2)
#this if statement is required in case no intervals are found to be significant
if (length(over3stdev)==0){
print("No significant intervals found")
return(0)
}else{
significantIntervals<-
matrix(c(breaks1[over3stdev],breaks1[over3stdev]+binsize),length(over3stdev),2)
}
#append number of genes in the bin and the zscore to significantIntervals
significantIntervals<-
matrix(cbind(significantIntervals,chromBins[over3stdev],over3stdevZscore),ncol=
4)
significantIntervals<-
matrix(significantIntervals[sort(significantIntervals[,1],index.return=T)$ix,],ncol=4)
significantIntervals<-
matrix(significantIntervals[which(significantIntervals[,3]>1),],ncol=4)
print(significantIntervals)
if(dim(significantIntervals)[1]==0){
return(0)}else{
return(significantIntervals)
}
}

#This script is used to cluster SNPs onto Soybean chromosomes. Requires
SNPsource.R and .RDataSNP
#This script was written in the R programming language to determine intervals of
significant SNP density based on a bootstrap method.
#Required input for the script is a list of SNPs with chromosomal positions.
Output of the script is similar to Figure 2 and Figure 3.
#Created on 04/06/10 by Andrew Severin andrewseverin@gmail.com
#Iowa State University
#required libraries
library(gplots)
source('SNPsource.R')
load(".RDataSNP")
#starting parameters
dir<-"./"
numofsims<-3
SNPsofInterest<-read.table('./exampleSNPsFile.txt') #list with SNPs of interest
numberOfChromosome<-20 #this variable will allow you to loop through the first
X chromosomes (see for loop below)
#this section is optional if you would like to have multiple bin sizes uncomment
#StartingBinsize<-6000000 #important the the vector in this forloop results in
```

```
binsizes that include the binsizes before it
#binscales<-c(1,2,6,12,60,120) #for binsize 6M 3M 1M 500K 100K 50k
#For multiple bin sizes comment out this block of code
StartingBinsize<-500000 #Here I chose just one binsize
binscales<-c(1)
#variables calculated from the input parameters
geneCoordinatesAve<-
matrix(round((geneCoordinates[,3]+geneCoordinates[,4])/2),ncol=1)
rownames(geneCoordinatesAve)<-rownames(geneCoordinates)
chromosomelengthAll<-chrom[,4]
maxchromosomelength<-max(chrom[,4])
significantIntervalsOrig<-0
#this for loop will cycle through each chromosomes.
for (i in 1:numberOfChromosome){
#for (i in numberOfChromosome:numberOfChromosome){ #This line can be
uncommented if you want to run it on a specific chromosome
dir.create(paste("./",i,sep="")) #create directory to export outfiles
chromosomelength<-chromosomelengthAll[i]
maxNumGenesInCluster<-0 #initiate a variable that will be needed later for
plotting
SNPs<-identifySNPSOnChromosomeForSoybean(SNPsofInterest,i) #this
function will identify the SNPs on each chromosome as it goes through the loop
if (dim(SNPs)[1]<3){ #No need to look at chromosomes that do not have at least
3 SNPs
print(SNPs)
next()
}
bootData<-simulateData(numofsims,AllGeneCalls,geneCoordinates,SNPs,i)
#generate the simulated data (See SNPsource for code)
#binSize (for loop) will cycle through the binsizes determined above
for (b in binscales){
binsize<-StartingBinsize/b
print(binsize)
appendtofilename<-paste("_",binsize/binscales,sep="") #this variable is used for
the outputfiles to distinguish between bins
SNPcoords<-SNPs[,1] #for retrieval of the coordinates of the SNPs of interest
#function to do bootstrap method
significantIntervals<-
clusterByBoostrap(chromosomelength,binsize,geneCoordinatesAve,SNPcoords,
AllGeneCalls,numofsims,bootData)
print(significantIntervals)
if (b==binscales[1]){
#open a pdf file
pdf(file=paste(i,"/chrom",i,"ALL",".pdf",sep=""),paper="special",height=7,width=10
```

```
0)
plot(0:1, 0:1, type="n", axes=FALSE, ann=FALSE)
}
#if there are no significant Intervals go to the next binsize in the loop
if(significantIntervals==0){
next
}
#This block estimates the required Y dimension for plotting and works for most
cases
if (maxNumGenesInCluster==0){
maxNumGenesInCluster<-max(significantIntervals[,3])+1
}
#required input variables for the plotting function. ChromosomePlot can be found
in SNPsource.
intervalstart<-significantIntervals[,1]
intervalend<-significantIntervals[,2]
intervalheight<-significantIntervals[,3]
currentBinScale<-b
ChromosomePlot(chromosomelength,intervalstart,intervalend,intervalheight,max
NumGenesInCluster,maxchromosomelength, binScales,
currentBinScale,SNPcoords)
if(b==binscales[length(binscales)]){
#now that the plotting is finished, close the pdf file
dev.off()
}
#write to file gene lists with intervals that are significant
colnames(significantIntervals)<-
c('intervalstart','intervalend','numberInInterval','ZscoreaboveBootstrap')
write.table(significantIntervals,file=paste(i,"/clusterTable",i,appendtofilename,".txt"
,sep=""),append=T,quote=F,col.names=T)
}
#this commands save the R sessions for each chromosome into each
chromosome folder respectively.
save.image(file = paste(i,"/.RData",i,sep=""))
}
```

```
#the two columns are identical required to read in as a table in the script
position position
Gm01_53617124 53617124 53617124
Gm02_5687687 5687687 5687687
```

Gm02_42350182 42350182 42350182
Gm03_36460374 36460374 36460374
Gm03_36554101 36554101 36554101
Gm03_36559857 36559857 36559857
Gm03_36559926 36559926 36559926
Gm03_36560002 36560002 36560002
Gm03_36952394 36952394 36952394
Gm03_36959955 36959955 36959955
Gm03_36996777 36996777 36996777
Gm03_36997184 36997184 36997184
Gm03_36997185 36997185 36997185
Gm03_37024958 37024958 37024958
Gm03_37027198 37027198 37027198
Gm03_37144398 37144398 37144398
Gm03_37165409 37165409 37165409
Gm03_37827399 37827399 37827399
Gm03_37828684 37828684 37828684
Gm03_37828791 37828791 37828791
Gm03_37832228 37832228 37832228
Gm03_37863675 37863675 37863675
Gm03_38065066 38065066 38065066
Gm03_38083417 38083417 38083417
Gm03_38117453 38117453 38117453
Gm03_38117485 38117485 38117485
Gm03_38132996 38132996 38132996
Gm03_38136913 38136913 38136913
Gm03_38170431 38170431 38170431
Gm03_38173719 38173719 38173719
Gm03_38173815 38173815 38173815
Gm03_38174150 38174150 38174150
Gm03_38174157 38174157 38174157
Gm03_38718231 38718231 38718231
Gm03_38718672 38718672 38718672
Gm03_38942920 38942920 38942920
Gm03_38942927 38942927 38942927
Gm03_39788794 39788794 39788794
Gm03_39788799 39788799 39788799
Gm03_39790874 39790874 39790874
Gm03_39795164 39795164 39795164
Gm03_39795203 39795203 39795203
Gm03_39964048 39964048 39964048
Gm03_39966061 39966061 39966061
Gm03_39967974 39967974 39967974
Gm03_39986148 39986148 39986148

Gm03_39993121 39993121 39993121
Gm03_40055679 40055679 40055679
Gm03_40056070 40056070 40056070
Gm03_40131229 40131229 40131229
Gm03_40131350 40131350 40131350
Gm03_40132046 40132046 40132046
Gm03_40154304 40154304 40154304
Gm03_40154315 40154315 40154315
Gm03_40160427 40160427 40160427
Gm03_40172340 40172340 40172340
Gm03_40179701 40179701 40179701
Gm03_40211426 40211426 40211426
Gm03_40371846 40371846 40371846
Gm03_40459321 40459321 40459321
Gm03_40462434 40462434 40462434
Gm03_40462640 40462640 40462640
Gm03_40585266 40585266 40585266
Gm03_40585499 40585499 40585499
Gm03_40586108 40586108 40586108
Gm03_40587775 40587775 40587775
Gm03_40600203 40600203 40600203
Gm03_40600256 40600256 40600256
Gm03_40603941 40603941 40603941
Gm03_40628097 40628097 40628097
Gm03_40656449 40656449 40656449
Gm03_40676583 40676583 40676583
Gm03_40676856 40676856 40676856
Gm03_40678154 40678154 40678154
Gm03_40683015 40683015 40683015
Gm03_40685721 40685721 40685721
Gm03_40785291 40785291 40785291
Gm03_40785299 40785299 40785299
Gm03_40823593 40823593 40823593
Gm03_40874888 40874888 40874888
Gm03_40886333 40886333 40886333
Gm03_40889026 40889026 40889026
Gm03_40906651 40906651 40906651
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Gm03_41007937 41007937 41007937
Gm03_41008255 41008255 41008255
Gm03_41008442 41008442 41008442
Gm03_41008459 41008459 41008459
Gm03_41171468 41171468 41171468
Gm03_41185505 41185505 41185505

Gm03_41223681 41223681 41223681
Gm03_41228284 41228284 41228284
Gm03_41228321 41228321 41228321
Gm03_41234338 41234338 41234338
Gm03_41274006 41274006 41274006
Gm03_41275788 41275788 41275788
Gm03_41982791 41982791 41982791
Gm03_42142835 42142835 42142835
Gm03_42179147 42179147 42179147
Gm03_42224757 42224757 42224757
Gm03_42224778 42224778 42224778
Gm03_42243466 42243466 42243466
Gm03_42243699 42243699 42243699
Gm03_42672131 42672131 42672131
Gm03_45026222 45026222 45026222
Gm03_45416367 45416367 45416367
Gm03_45503654 45503654 45503654
Gm03_45516926 45516926 45516926
Gm04_44787569 44787569 44787569
Gm04_45061509 45061509 45061509
Gm04_45090419 45090419 45090419
Gm04_45152573 45152573 45152573
Gm04_45157974 45157974 45157974
Gm04_45380790 45380790 45380790
Gm04_45594453 45594453 45594453
Gm05_38251772 38251772 38251772
Gm05_38278658 38278658 38278658
Gm05_38279366 38279366 38279366
Gm05_38280387 38280387 38280387
Gm05_38337295 38337295 38337295
Gm05_38402327 38402327 38402327
Gm05_38432746 38432746 38432746
Gm05_38433427 38433427 38433427
Gm05_38433580 38433580 38433580
Gm05_38589019 38589019 38589019
Gm05_38596037 38596037 38596037
Gm05_38913395 38913395 38913395
Gm05_38913666 38913666 38913666
Gm05_39082457 39082457 39082457
Gm05_39082469 39082469 39082469
Gm06_5721969 5721969 5721969
Gm06_5721970 5721970 5721970
Gm08_3461787 3461787 3461787
Gm09_6112681 6112681 6112681

Gm10_38131569 38131569 38131569
Gm10_38131571 38131571 38131571
Gm10_47783606 47783606 47783606
Gm12_3862466 3862466 3862466
Gm12_38459068 38459068 38459068
Gm13_35524268 35524268 35524268
Gm13_35617464 35617464 35617464
Gm13_35823484 35823484 35823484
Gm13_35823512 35823512 35823512
Gm13_35823533 35823533 35823533
Gm13_35823811 35823811 35823811
Gm13_35835159 35835159 35835159
Gm13_35862124 35862124 35862124
Gm13_35862205 35862205 35862205
Gm13_39517326 39517326 39517326
Gm14_28088505 28088505 28088505
Gm15_3100509 3100509 3100509
Gm16_30464934 30464934 30464934
Gm16_30479527 30479527 30479527
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Gm16_31225684 31225684 31225684
Gm16_31461554 31461554 31461554
Gm16_31475163 31475163 31475163
Gm16_31476359 31476359 31476359
Gm16_31827645 31827645 31827645
Gm16_31827884 31827884 31827884
Gm16_31827991 31827991 31827991
Gm16_31828137 31828137 31828137
Gm16_31829738 31829738 31829738
Gm16_31840753 31840753 31840753
Gm16_31840819 31840819 31840819
Gm16_31842815 31842815 31842815